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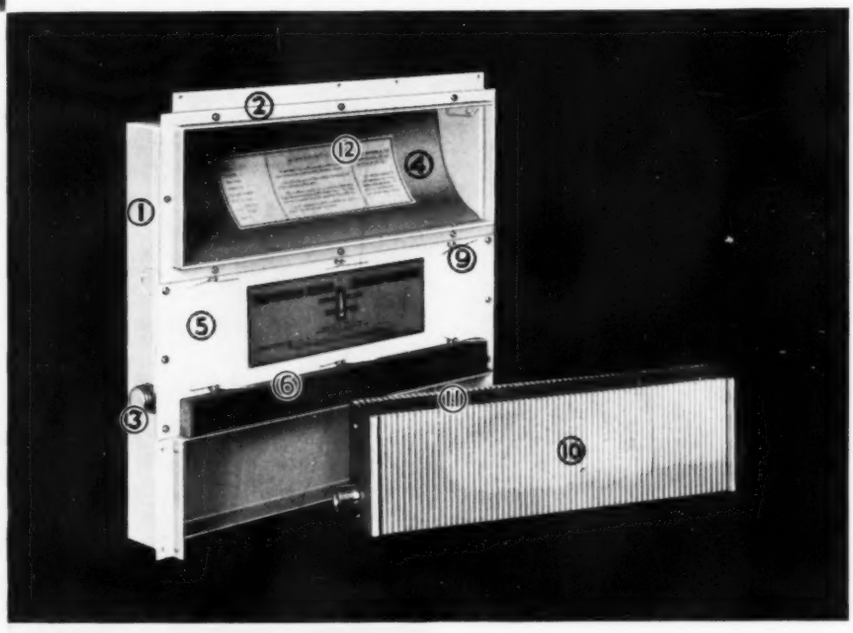

1. *Sheet steel cavinet* scientifically designed to maintain proper ratings and capacities.
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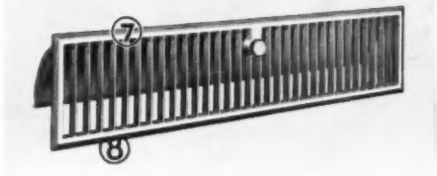
3. *Temporary cap* to protect radiator opening and threads from damage before installation.
4. *Shield* to protect heating element during construction—prevents dirt and plaster from dropping into heating element and impairing heating efficiency.
5. *Sturdy front panel construction* prevents damage of plaster due to pressure.
6. *Wood strip* above inlet opening provides for nailing.
7. *Grille and damper unit* fastened to frame itself and not screwed to a wood brick or plaster.
8. *Felt strips* to prevent leakage around grille.
9. *Wire ties* on front of cabinet for direct fastening of metal lath.
10. *Patented Wedge Core Heating Element*—light, strong, compact, free from joints to fail and leak or parts that can rust or get out of order.
11. *Free air passage* through radiator assures quick, uniform heating of air.
12. *Instructions* on correct installation.



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THE ARCHITECTURAL RECORD

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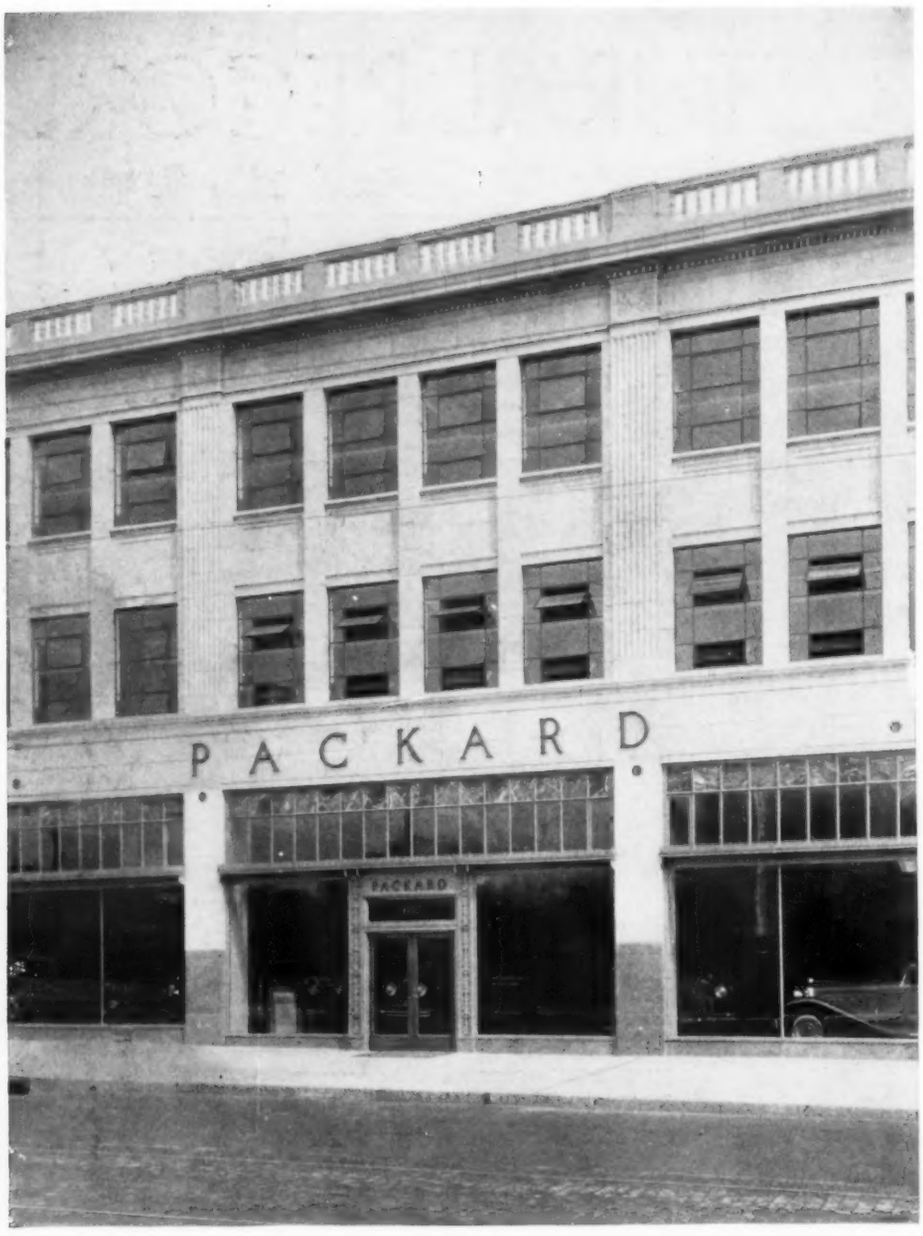

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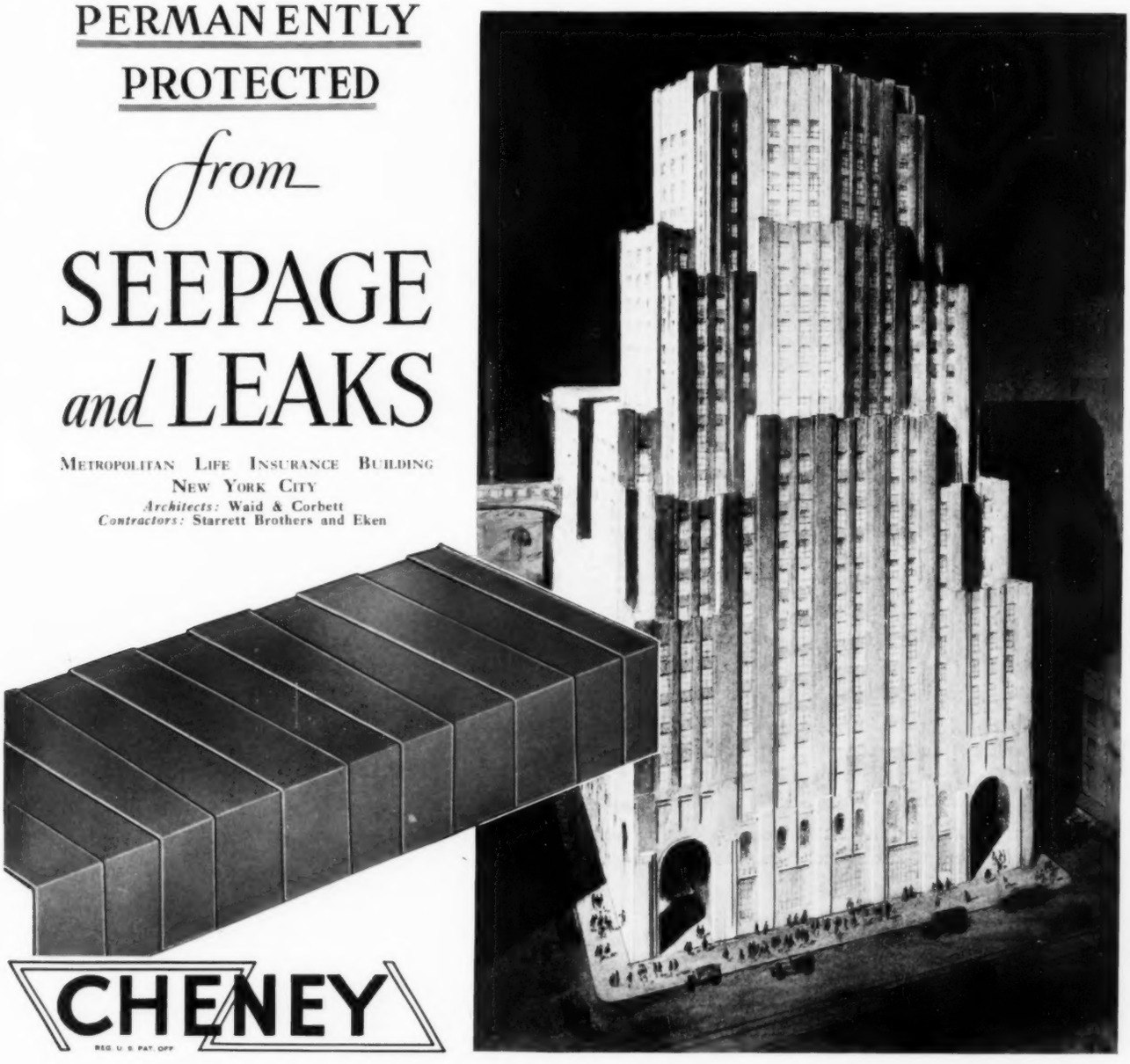

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EXHIBITIONS AND EVENTS

January 7	"County and Parkway Planning," a lecture by Major Gilmore Clarke of the Westchester County Parkway Commission. The New School for Social Research, New York.
Jan. 18-21	Thirteenth annual convention of the Associated General Contractors of America in Milwaukee.
January 20	"George Washington Bridge," a lecture at the New School for Social Research, New York.
January 22	Annual costume ball of the Society of Beaux Arts Architects, Waldorf-Astoria, New York City.
Jan. 25-29	Second International Heating and Ventilating Exposition, Cleveland. In conjunction with annual meeting of American Society of Heating and Ventilating Engineers.
January 31	Lecture by F. Kiesler, architect, at Brooklyn Art Museum. Subject: Ornament and Crime —The Life and Work of the Austrian architect, Adolf Loos.
Feb. 10-March	Exhibition of modern architecture at the Museum of Modern Art, New York City. American exhibitors: Frank Lloyd Wright, Raymond Hood, Howe and Lescaze, Bowman Brothers, Richard Neutra. European architects: Mies van der Rohe, Walter Gropius, J. J. P. Oud, Le Corbusier, Otto Haesler.

Frederic W. Mellor, architect, announces the removal of his office from 25 West 45th Street to 386 Fourth Avenue, New York City.

Myles E. Belongia has formed a partnership with Paul H. Smith, architect, formerly with the office of D. H. Burnham of Chicago, for the practice of architecture.

James A. Britton has moved his office from 344 Clyde Street, Brookline, Mass., to 174 Great Road, Maynard, Mass.

A decorative resource service for architects and decorators is announced by the Brownell-Lambertson Galleries, 106 East 57th Street, New York City.

EXHIBITION OF MODERN ARCHITECTURE

The Museum of Modern Art announces an exhibition of modern architecture which will open on February 10 at the Museum's headquarters, 730 Fifth Avenue, New York City, and continue for a period of about six weeks.

The exhibition, under the direction of Philip Johnson, will show by means of models and enlarged photographs, the work of Frank Lloyd Wright, Raymond Hood, Howe and Lescaze, Bowman Brothers, Richard Neutra, Miës van der Rohe, Walter Gropius, J. J. P. Oud, Le Corbusier, Otto Haesler and others.

After closing in New York, the exhibition will make a three-year tour of the United States. Included at present in the definite itinerary are the following cities: Philadelphia, Hartford, Los Angeles, Buffalo, Cleveland, Milwaukee, Cincinnati, Toledo, Rochester, Worcester and Cambridge.

ARCHITECTS

FELLOWSHIP IN ILLUMINATING GLASSWARE AT MELLON INSTITUTE

The Mellon Institute of Industrial Research, Pittsburgh, announces the establishment by the Macbeth-Evans Glass Company, Charleroi, Pa., of a fellowship in illuminating glassware. Dr. Rob Roy McGregor, a specialist in physical chemistry, has been appointed to this fellowship. Dr. McGregor received his professional training at McMaster University and at the University of Illinois and has been a member of Mellon Institute's research staff since 1927.

OLYMPIAD COMPETITION AND EXHIBITION

A competition of works by living architects belonging to the nations which have been invited to the games of the tenth Olympiad is to be held at Los Angeles. In conjunction with this competition there will be an exhibition of art, to be held at the Los Angeles County Museum, from July 30 to August 14.

Only architectural designs pertaining to sports, such as stadiums, sports grounds, playing grounds, covered courts, club buildings, boat houses, gymnasiums, swimming schools, and which answer to high artistic requirements, will be admitted. Prizes will be awarded for the best three designs for town planning and the best three architectural designs.

More definite information regarding the rules and regulations covering this competition may be obtained from the Secretary, American Olympic Committee, Woolworth Building, 233 Broadway, New York City.

BETTER HOMES AND BUILDINGS EXHIBIT IN PITTSBURGH

A permanent exhibition of the best materials, equipment and decoration in all types of buildings —with all exhibits completely "built-in"—has been established in the new Gulf Building in Pittsburgh. No booths, samples or unrelated exhibits are permitted. The exhibition covers three floors and is operated by the Gulf Building Company, a subsidiary of the Gulf Oil Company.

All matters of design, construction and arrangement are under the direct control of Schwab and Palmgreen, architects for the exhibit. The first exhibition floor will be opened to the public about May 1.

ANNOUNCEMENTS

JAMES HARRISON STEEDMAN FELLOWSHIP IN ARCHITECTURE

The seventh annual competition for the James Harrison Steedman Memorial Fellowship in Architecture, worth $1,500 and open to all graduates of recognized schools of architecture in the United States, has been announced by the governing committee composed of J. Lawrence Mauran, chairman, Louis LaBeaume, and Gabriel Ferrand, professor of design in the Washington University School of Architecture.

The fellowship gives the recipient a year of study in Europe. According to the conditions of the contest, all candidates must be American citizens of good moral character and must have had at least a year of practical work in the office of an architect practicing in St. Louis. Application blanks must be procured from the School of Architecture and returned not later than January 21. The actual competition will be conducted by the faculty of the School of Architecture this spring. After completion of the year of study abroad, the Steedman fellow is required to present a thesis as part of the work toward the degree of Master of Architecture.

LE BRUN TRAVELLING SCHOLARSHIP

The Executive Committee of the New York Chapter of the American Institute of Architects, as Trustees of the Travelling Scholarship, founded by Pierre L. Le Brun, announces a competition for the selection of a beneficiary. The program will be issued about January 15, calling for drawings to be delivered about March 15.

The sum of $1,400 is to be awarded to defray the expenses of a European trip, lasting not less than six months. Any architect or architectural draftsman, a citizen and resident of the United States, not under 23 or over 30 years of age, who shall, for at least three years, have been either engaged in active practice, or employed as an architectural draftsman and who is not and has not been the beneficiary of any other travelling scholarship, shall be eligible to compete.

All those wishing to enter the competition should arrange at once for nomination by a member of the American Institute of Architects. Nomination blanks can be obtained from the Secretary of any Chapter, A. I. A., or from the Le Brun Scholarship Committee. Nominations should be sent, so as to be received before January 15, to Le Brun Scholarship Committee, Room 530, 101 Park Avenue, New York City.

COMPETITIONS

January 7	Closing date of competition for a monument at Appomattox Court House, Virginia, to commemorate the termination of the Civil War. Address the office of the Quartermaster General, Munitions Building, Washington, D. C.
January 15	Programs issued for Le Brun Travelling Scholarship Competition. Address Le Brun Scholarship Committee, Room 530, 101 Park Avenue, New York City.
January 18	Closing date for applications for the James Templeton Kelley Fellowship in Architecture. Address Niels H. Larson, Boston Society of Architects, 814 Statler Building, Boston.
January 21	Closing date for applications for the James Harrison Steedman Memorial Fellowship in Architecture. Address The School of Architecture, Washington University, St. Louis, Mo.
February 1	Closing date for entries in the annual Prizes of Rome competition. Address Roscoe Guernsey, Secretary, American Academy in Rome, 101 Park Avenue, New York City.
March 7	Mailing date of programs to approved candidates for the fifth annual competition for the A. W. Brown Travelling Scholarship. Address William Dewey Foster, 25 West 45th Street, New York City.

A. W. BROWN TRAVELLING SCHOLARSHIP

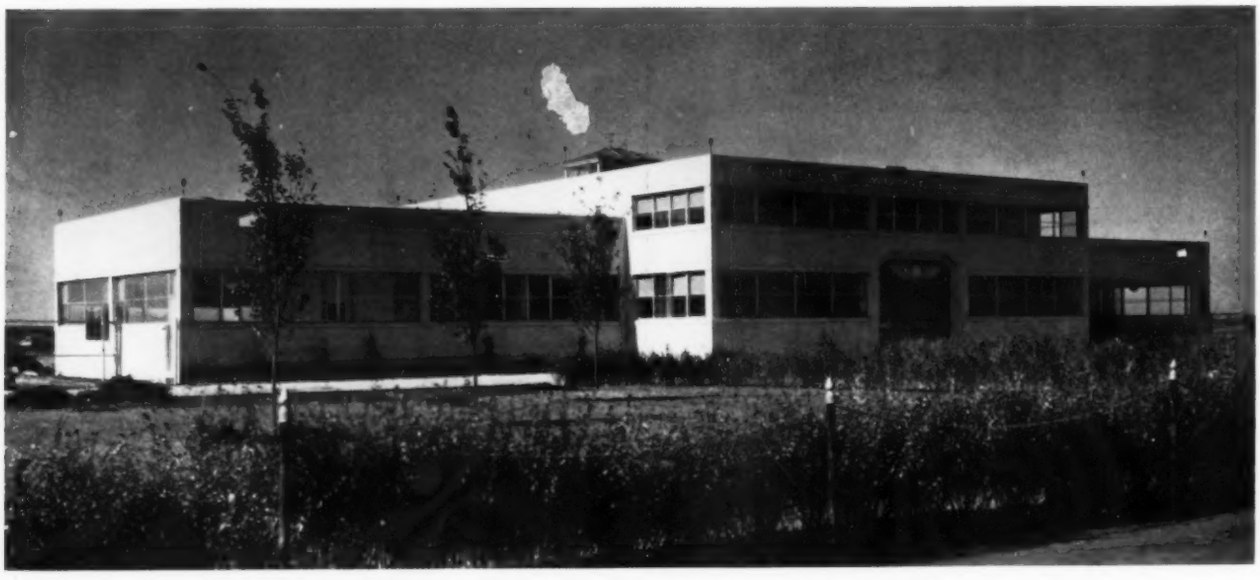
The fourth competition for the A. W. Brown Travelling Scholarship to be held under the direction of a committee of the American Institute of Architects, is announced. Programs will be mailed to approved applicants about March 7, drawings to be delivered on or about April 6. Application blanks may be obtained from the Secretary, William Dewey Foster, 25 West 45th Street, New York City.

This scholarship is the gift of Ludowici-Celadon Company and is a memorial to the late A. W. Brown, for many years president of that company. The amount of the scholarship is $2,000, to be used towards defraying expenses of a year of travel and study in Europe. Second, third and fourth prizes of $250, $150 and $100 are also offered.

The competition is open to any architect or architectural draftsman, under 32 and over 22 years of age, who is a citizen and resident of the United States; who has not held any other European scholarship; and who has been in active practice or employed in the offices of practicing architects for at least six years, or, if a graduate of an architectural school, at least two years since graduation.

The beneficiary will be required to spend the first two or three months of his time abroad as a student at the American School of Fine Arts at Fontainebleau, except under special conditions. He will also be required to complete, during his European study, two envois, which shall consist of measured drawings of buildings on which burnt clay has been used for roofing.

FEATURES IN THE FEBRUARY ISSUE



CHICAGO MUNICIPAL AIRPORT — PAUL GERHARDT, JR., CITY ARCHITECT

Hedrich-Blessing

RACINE COUNTY COURT HOUSE, RACINE, WISCONSIN
HOLABIRD AND ROOT, ARCHITECTS

In addition to the two buildings illustrated on this page, the PORTFOLIO will feature an office building in Los Angeles by John and Donald B. Parkinson; a clubhouse in Cambridge, Mass., by Perry, Shaw and Hepburn; a memorial chapel in Allentown, Pa., by Frank R. Watson, Edkins and Thompson; and several houses by Barber and McMurry, Frost and Raymond, and Henry Dubin, architects.

The series of housing studies will be continued with an article on "The Blighted Areas of Cities and Towns," by Arthur C. Holden, architect. Mr. Holden sets forth a method of financing which will make possible the reconditioning of such districts and pave the way for architectural developments. Henry Wright, architect, also will contribute an article on "The Fundamentals of Housing Costs in Renting and Owning."

The Technical News and Research Department will present two studies this month: (1) Hospitals for Treatment of Mental Diseases, and (2) Planning Requirements for Surgical Operating Rooms, a checklist prepared by Dr. S. S. Goldwater, hospital consultant.

AMONG THE CONTRIBUTORS IN THE CURRENT ISSUE

JANE CALLAGHAN directed, with Dr. Lillian Gilbreth, the research on measurements for the Brooklyn Borough Gas Co.

TALBOT FAULKNER HAMLIN is professor of architecture at Columbia University and a practicing architect in New York City.

THOMAS S. HOLDEN is a graduate in architecture, Massachusetts Institute of Technology, with several years of practice in Boston and Ohio. He is a member of the President's Conference Committee on Types of Dwellings, a member of the executive committee of the National Building Congress and a member of the National Conference on Construction.

WILLIAM STANLEY PARKER, a practicing architect, is chairman of the Committee on Design of the President's Conference and president of the Architect's Small House Service Bureau in Boston.

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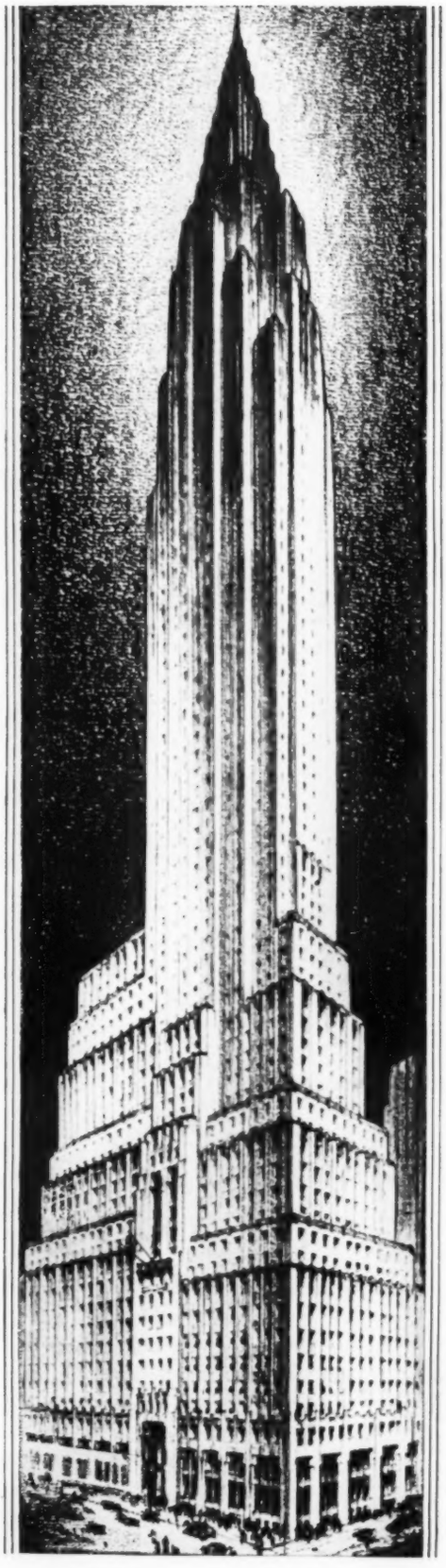

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Sweet's, Pages C3217-C3219

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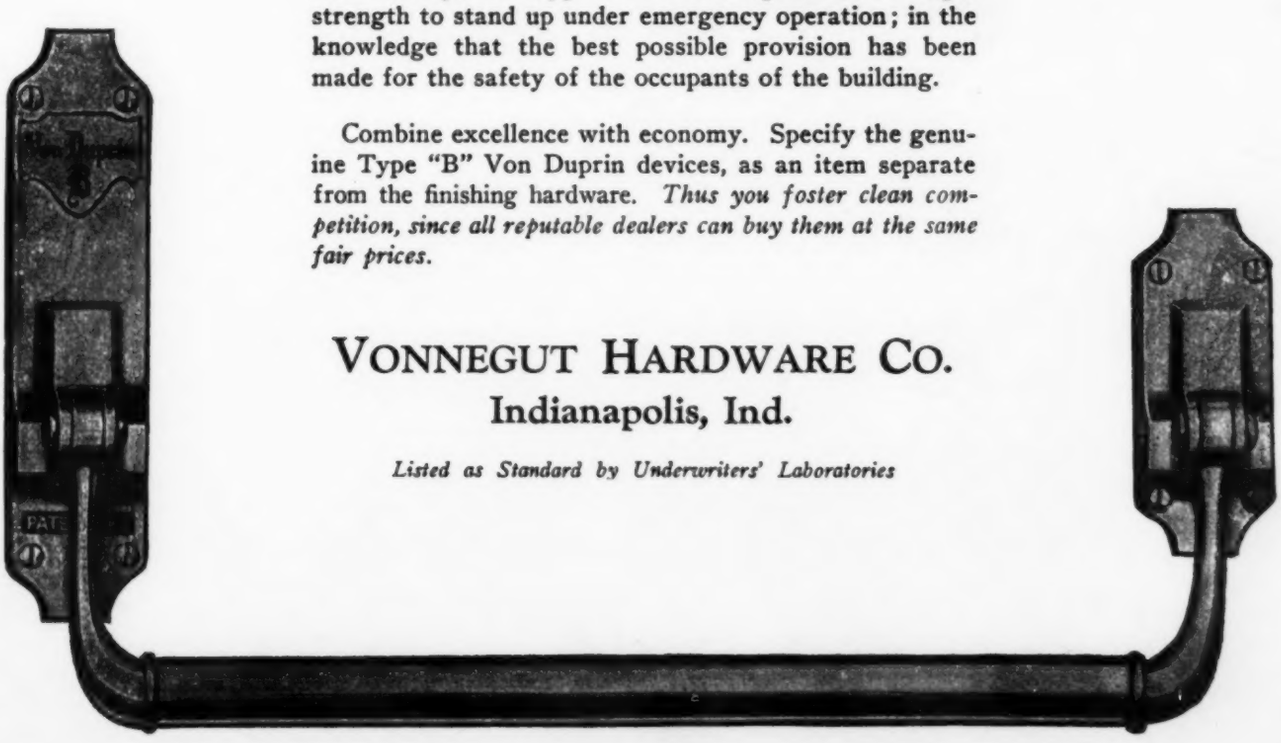

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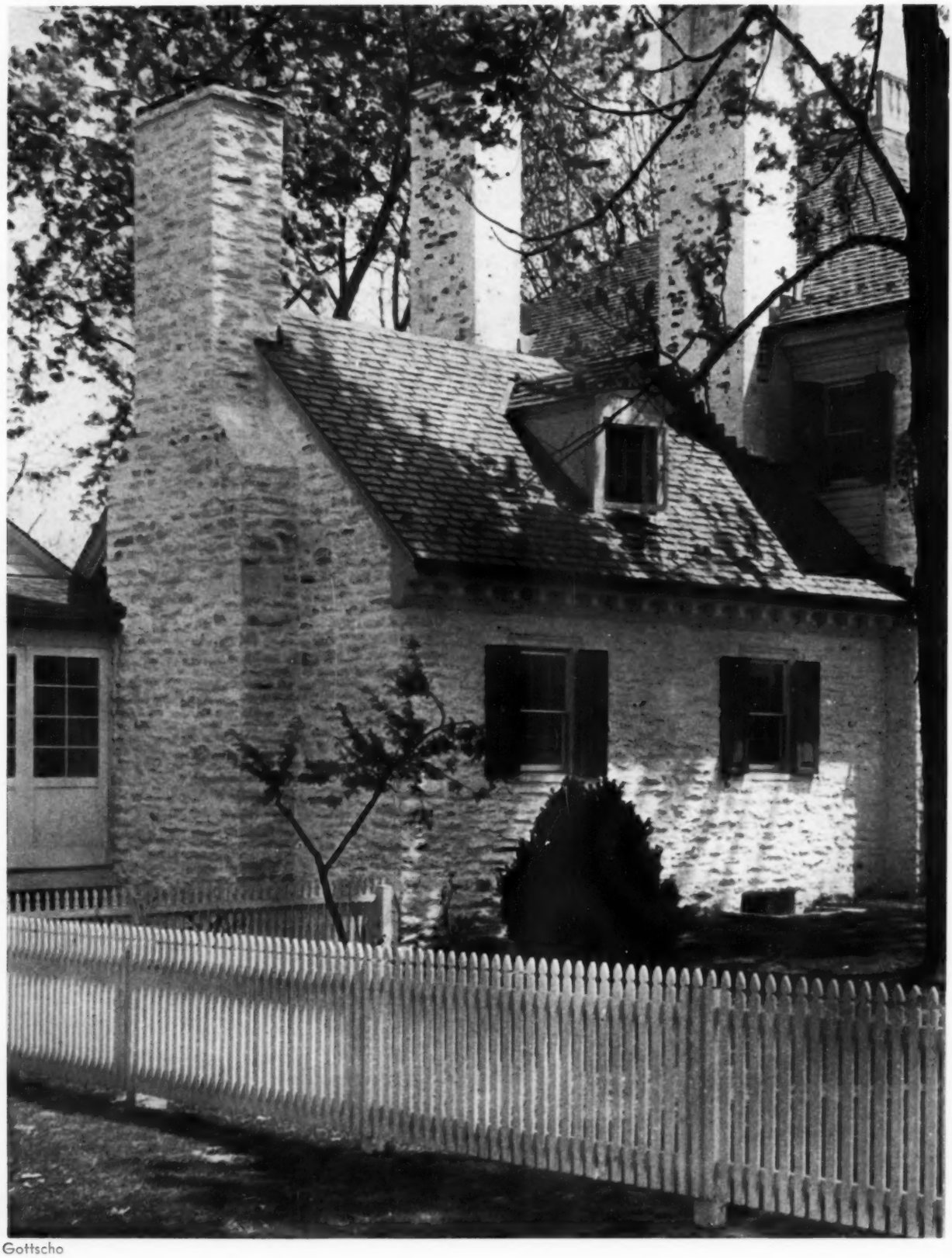

Gottscho

HOUSE OF AMORY S. CARHART AT WARRENTON, VIRGINIA
BOTTOMLEY, WAGNER AND WHITE, ARCHITECTS

THE ARCHITECTURAL RECORD JANUARY, 1932
VOL. 71—No. 1

By THOMAS S. HOLDEN,
Vice President in Charge
of Statistics and Research,
F. W. Dodge Corporation

EFFECT OF REDUCED POPULATION GROWTH ON CONSTRUCTION DEMAND*

Factual study of the relationship between construction demand and population growth leads to the following conclusions:

1. If current population trends continue, the automatic increase of building demand, which has in the past enabled us to rely on individualistic speculative building projects to fill our needs and which has automatically lifted us out of depressions, tends to disappear.
2. Increased building activity will continue to accompany important new industrial, economic and social developments.
3. As opportunities for speculative real estate and building developments gradually dwindle away, the building industry will of necessity develop a sound economic plan, whose opportunities for substantial progress are real but impossible to estimate today.

The change in trend of population growth is a challenge and an opportunity. We have always relied upon the methods of the frontier trading post and the mining camp to build the towns and cities of America. We are not satisfied with the results. We should not mourn the passing of a dying era, even though the transition to a newer and better one is a little painful. We can rebuild our cities and towns into civilized communities if we will only have the patience to plan intelligently and pay as we go.

In short, the day of individualistic planning is on the wane. Building demand of the future will be carefully created on the basis of community planning and community cooperation. The architect who can take the lead in creating community plans and in developing community technique will be the one to whom business will naturally flow.

It has always been considered self-evident that building and engineering activities thrive best in growing communities, that population growth is an important factor in construction demand. That this has been true in the recent past is the conclusion arrived at by a thorough study and analysis of the construction and population statistics of 299 American cities for the census decade 1920-1930. In the case of 259 of these cities (omitting the 40 largest) direct comparisons of the building permit volumes of rapidly growing cities and practically stationary cities have been made.

Of the 259 cities covered in this study, whose population was less than 165,000 in 1920, there were 24 which lost population in the last census decade and 43 which gained population at very moderate rates, most of them less than 5 per cent and all of them less than 8 per cent. The combined population of these 67 cities had a net loss of 1/40 of 1 per cent in the decade. These 67 combined cities may be taken as representing a stationary section of our population whose quite sizable building volume has been recorded. The other 192 cities started in 1920 with populations of 165,000 or less, but all of them grew very rapidly, each of them increased more than 8 per cent and the group as a whole increased 37 per cent. The group of rapidly growing cities had a combined population 2.3 times the population of the stationary group on January 1, 1920, and 3.1 times the population of the stationary cities on January 1, 1930; in the intervening ten years they had 4.9 times the building volume of the stationary group of cities. Evidently population growth affected building demand in those cities. Consequently, it is reasonable to assume that any considerable diminution in the rate of increase of population of the country as a whole is likely to reduce construction demand unless there are offsetting factors of sufficient magnitude to balance this reduction. This study will first attempt to measure the reduced demand effected by the estimated population change in the current decade and will then discuss factors tending to equalize the construction program.

* A paper delivered before the American Statistical Association, Washington, D. C., December 28, 1931.

Measuring Effects of Population Growth

To measure the change in construction demand occasioned by the change in rate of population growth, it is necessary to divide the construction expenditures of the past decade into two parts, and obtain one figure for construction expenditures for the new people added to our population, and another one for construction expenditures made to

improve the standards and facilities of existing population. This has been done, as largely as possible on a factual basis.

The basis of the analysis has been the comparison of building permit records for the group of 67 cities whose combined population was practically stationary in the past decade with the records of the group of 192 cities which were of the same class as to size in 1920 and whose population grew very rapidly. If we assume that the population existing in these growing cities on July 1 of a given year spent, for their own improvements and irrespective of expenditures for new people, the same per capita amounts as were spent the same year by the people in the stationary group of cities, we arrive at an estimate of total expenditures that year for existing population; the remainder of what was actually spent was for the new people. By this method, we arrive at these figures: 61 per cent of all building expenditures for the years 1920-1929 in 259 cities for existing population; 39 per cent for the new people joining the communities each year. These figures were based on permit records* of the 259 cities whose population was under 165,000 in 1920.

On the basis of these results for 259 cities, the analysis was extended to include the building and engineering expenditures for the 40 largest cities outside the first group, and for the population in the small towns and rural communities outside the complete list of 299 cities.

The net result of estimates for these different sets of cities and smaller communities, too detailed to go into here, is the adoption of 35 per cent to represent the portion of total construction expenditures of the past census decade that resulted directly from population growth. The same process of analysis, applied to the numbers of new housing units, results in assigning 60 per cent of the total new units built in the last census decade to new population and 40 per cent to existing population. These figures on construction for new population reduce to $782.85 per person at 1913 cost levels for all construction, divided as follows: $503.27 per new person for new housing accommodations; $279.58 per new person for all other classes of construction. These figures may be considered as minimum measures of the demand occasioned by new population.

Construction Demand in the Current Decade

In setting up the table that appears herewith, it is assumed that the population increase of the current decade will be 9,000,000, compared with 16,648,220 for the ten years from January 1, 1920 to January 1, 1930. The dollar figures are the F. W. Dodge Corporation's estimates of total building and engineering work in the United States, expressed in terms of 1913 dollars to eliminate the effect of changing construction costs. The estimated total for the 10 years in current dollars was approximately $70,000,000,000, which reduces to $37,237,500,000 on the 1913 cost basis.

In the first three tables the total figure for construction expenditures for benefit of existing population is assumed to be the same in the years 1930-1939 as it was in the past census decade, and construction for new population is reduced by 46 per cent, the amount of the estimated reduction in new members of the population. The results indicated on these assumptions are: total construction expenditures would be reduced by 16 per cent; housing expenditures, by 28 per cent; non-housing expenditures, by 9 per cent.

It should be pointed out with all possible emphasis that these figures are not to be construed as forecasts of what will actually happen, but as measures of a handicap set to the construction program of this decade by one of the fundamental economic changes that has taken place. It may also be pointed out that in so far as these figures approximate actual construction requirements they indicate as necessary a rate of construction activity considerably above that which has prevailed in 1931. It should also be stated that the assumption of equal expenditure in 1913 dollars, as between the two decades, for existing population, implies a reduced expenditure per capita in this decade, which may not turn out to be true. In the case of housing, for example, we may make a different assumption from the one used in the table. If we assume that the enlarged existing population of this decade will build the same number of housing units per thousand people instead of the same total number of units, the estimated reduction in housing volume in this decade is 21 per cent instead of the 28 per cent given in the table.

It is obvious from all that has been stated thus far that the total construction demand of the past decade was in itself influenced to a greater degree by real and supposed advances in living standards, income and wealth than by new population, even though the numerical increase of population was greater than in any previous census decade. The question of what the existing population of this decade will spend in construction for its own benefit is obviously the most important one today. In Table 4 it is shown that existing population would have to increase its expenditure 25 per cent over the last decade to equalize the anticipated decline in construction for new population. To reach such a scale of increased construction expenditures, the existing population of this decade will either have to have a much larger national income than in the past one or allocate a larger portion of the same-sized income to construction.

Another consideration in appraising these estimates as a possible forecast of what will happen is the fact that the figure assumed for population growth in this decade, 9 million persons, is a net

** Analysis of building records is stressed in the text for the reason that they afford the broad statistical coverage of 299 cities. Permit records are rather generally undervalued and they generally omit public works and utilities. A similar analysis of construction contract records for 72 cities was made, resulting in practically exact confirmation of the analysis of permit records. This confirmation justified the application of the percentages established by analysis of permit records to the Dodge estimates of total construction volume in the entire country, which are based upon the more complete figures on construction contracts.*

EFFECT OF REDUCED POPULATION GROWTH ON CONSTRUCTION DEMAND

(All figures expressed in terms of 1913 values)

Table No.	Population Analysis of Construction Program	Past Census Decade 1920 - 1929	Current Census Decade 1930 - 1939	Increase or Decrease
1. Total Construction Expenditures	For existing population	$24,204,400,000	$24,204,400,000	0%
	For new "	13,033,100,000*	7,045,600,000*	-46%
	Total	$37,237,500,000	$31,250,000,000	- 16%
	*$782.85 per new person			
2. Housing Expenditures	For existing population	$5,585,600,000	$5,585,600,000	0%
	For new "	8,378,400,000*	4,529,400,000*	-46%
	Total	$13,964,000,000	$10,115,000,000	-28%
	*$503.27 per new person			
3. Non-Housing Expenditures	For existing population	$18,618,800,000	$18,618,800,000	0%
	For new "	4,654,700,000*	2,516,200,000*	-46%
	Total	$23,273,500,000	$21,135,000,000	- 9%
	*$279.58 per new person			
4. Total Construction Expenditures	For existing population	$24,204,400,000	$30,191,900,000	+25%
	For new "	13,033,100,000*	7,045,600,000*	-46%
	Total	$37,237,500,000	$37,237,500,000	0%
	*$782.85 per new person			

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The above figures represent assumptions by which the effect of reduced population growth may be measured; they should not be taken as forecasts of what will actually happen.

aggregate of many changes in age and geographical distribution of population. Furthermore, statistics of construction activities, massed in impressive national totals, actually represent summations of activities which are definitely local in character. It must be remembered that we are trying to estimate a sum total of local changes without data on what those local changes are going to be.

Offsetting Factors

The many factors that may offset the declining tendency of construction volume occasioned by declining rate of population growth may be grouped under four headings, as follows:

1. More per capita expenditures for construction.
2. Changing composition and distribution of population.
3. Rapid obsolescence of buildings.
4. Economic planning of construction activities.

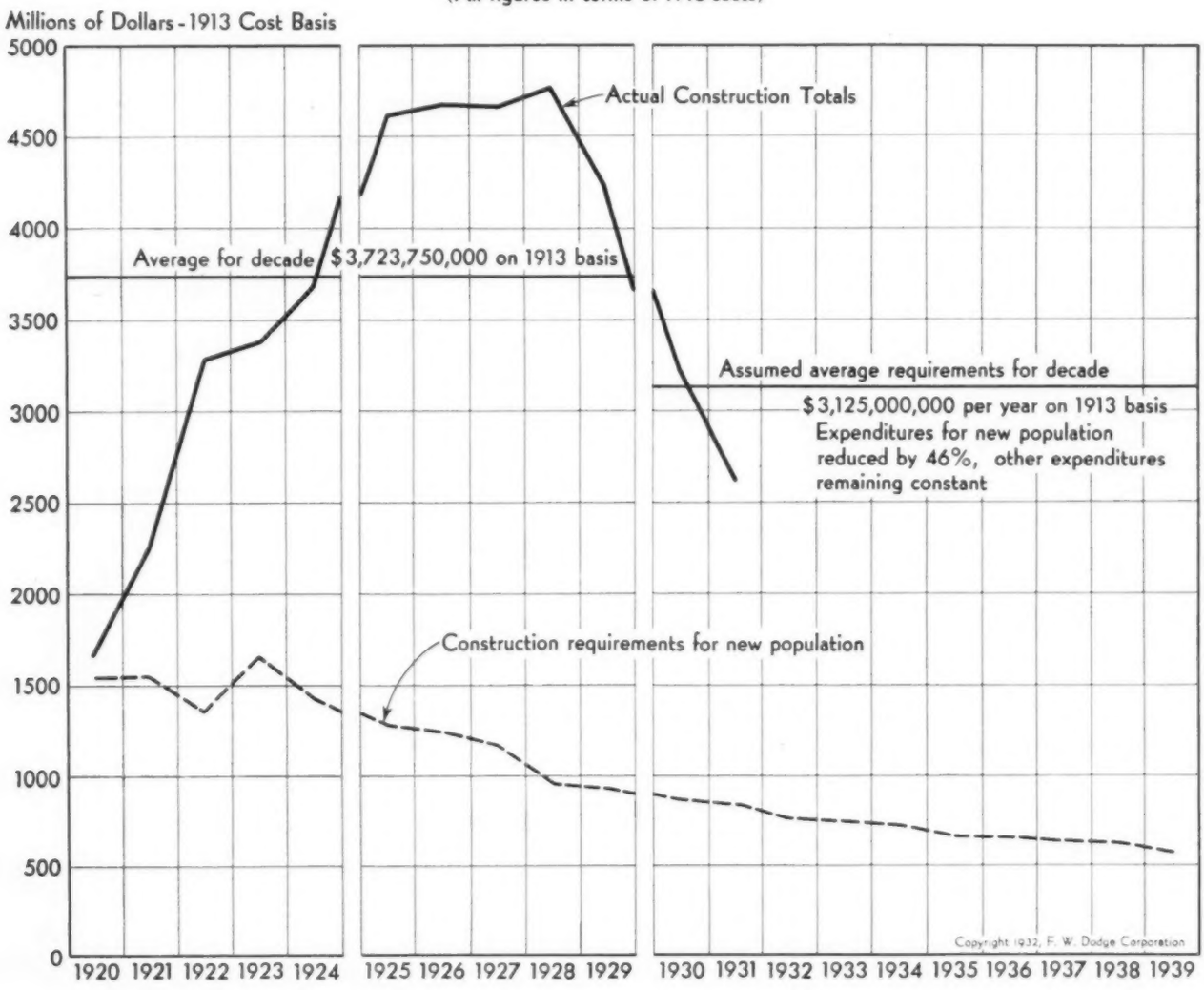
In the brief discussion which follows it will appear that while the first three factors will tend to influence the situation, their influence is likely to wane rather than increase in the long run, and that more and more we shall have to rely upon economic planning as we develop a sound program and a sound technique.

With respect to increased expenditures for construction improvements, the people of this country can have them in so far as desired improvements can be earned and paid for. This is frequently lost sight of. Since construction activities are financed on long-term credit, it is very easy to forget that over-extension of credit impairs the efficiency of the credit system. Sound improvements of the credit system will look to correction of defects in present credit machinery and elimination of excessive credit costs. Recent experiences in this country and in other countries should have taught our people that over-extension of credit for construction or any other activity is merely a method of borrowing next year's prosperity to sweeten this year's pot.

By improvements in buildings and reductions in building costs, such as have been taking place very rapidly in recent years, we have created a desire for better housing and better buildings for work, education and recreation. In so far as such im-

ACTUAL CONSTRUCTION VOLUME COMPARED WITH DEMANDS OF NEW POPULATION

(All figures in terms of 1913 costs)


Millions of Dollars - 1913 Cost Basis
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Actual Construction Totals
Average for decade $3,723,750,000 on 1913 basis
Assumed average requirements for decade
$3,125,000,000 per year on 1913 basis
Expenditures for new population reduced by 46%, other expenditures remaining constant
Construction requirements for new population
Copyright 1932, F. W. Dodge Corporation
1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939

The 1920-1924 period: Construction program to fill shortage. Requirements for new population represented 52 per cent of total actual construction; new population began to decrease in 1924 and the shortage was practically taken care of by the end of that year.

The 1925-1929 period: Speculative boom based on theories of rapidly advancing living standards and too liberal credits. Requirements for new population represented 24 per cent of total actual construction.

The decade 1920-1929: Turning point in population trends. In the ten years requirements for new population represented 35 per cent of total actual construction.

The decade 1930-1939: Requirements for new population estimated at 46 per cent less than in previous decade; if expenditures for existing population are just equal those of the 1920-1929 period, total construction would be 16 per cent less; this is subject to numerous offsetting factors discussed in the text. With the dwindling of opportunities for speculative booms and high-pressure selling methods will emerge opportunities for progress on a sound economic plan, the elements of which exist today and are described in the text. The year 1931 ran behind average assumed requirements of the current decade.

proved buildings may create in the minds of many people a greater preference for those improvements over other things for which they like to spend their money, increased construction demand will result. But we cannot assume that better buildings can be made the sole criterion of advancing living standards. Automobiles, radios and good clothes, social and educational advantages, and considerations of family security will continue to assert their claims for sizeable portions of our people's money. The opportunity for increased appreciation of good buildings is real, but there are limits to which the building market may be expanded in competition with other goods which legitimately claim consideration.

A factor frequently mentioned as destined to increase the market for new buildings is the speeding up of obsolescence in old buildings. This has always happened in an era of building improvement. Too rapid obsolescence implies waste and carries with it automatic checks that operate surely and sometimes drastically. Speculative over-production of building, as compared with actual current needs, helps to bring depressions. Competition of new buildings with old ones causes the old ones to be modernized as far as practicable, or to reduce their rental or selling prices. Extensions of cities and towns to embrace new building developments in new areas leave behind them blighted areas, depressed real estate values, unpaid mortgages, uncollected taxes and expensive public improvements while the community must undergo the added expense of new public improvements in the new areas. The country wants improved buildings, which inevitably compete with old ones, but speeding up the process at the expense of excessive waste does not offer opportunities that tend toward a stable foundation for the building industry.

Changing composition of our population has had its effects on building programs of the recent past. It has been pointed out that while our population increased 16 per cent in the past census decade, the number of families, according to census definition, increased 23 per cent. These figures reflect the relative increase of childless families and of other new family groups consisting of adults. This increase was to a considerable degree responsible for the boom in apartment buildings in the years 1925 through 1928. To the extent that the increased number of census families was occasioned by people who formerly lived with relatives and in boarding houses setting up establishments of their own it probably represented improved economic status of those people. These census changes in composition of families probably represent a phase of the fundamental economic shift from rapidly increasing population toward stable population. While we may have additional changes in composition of census families, the facts revealed in the 1930 census indicate that much of that kind of change has already taken place. To count on this splitting up of families into smaller units for increased construction demand is to count on something that is likely to diminish as our population approaches stability.

As to redistribution of population between various cities, between large cities and small towns, between urban and rural communities, that is a kind of change we have always had. In general population flows to areas of economic opportunity. We are likely to see a considerable redistribution of population in the current decade. Cities and towns that have hitherto gained population rapidly are likely to gain more slowly, and some of them may lose population. If the current depression has sent people back to farms, improved industrial conditions will later bring many of them back to the towns. We are likely to see increased competition for population among cities and towns, in which those communities offering the most in economic and social advantages will win. But, while we shall probably see a continued redistribution of population, with many opportunities for local speculative booms in real estate and building, it would seem likely that such changes will tend to subside as stability of population is approached.

The Building Industry Needs an Economic Plan

It is thus seen that the offsetting factors presented above, actual as they are and influential as they may be in the construction demand of the near future, are not of such enduring power as to guarantee continued construction activity on the scale we had in the past decade. To argue from this, however, that the construction industry is a waning industry is to argue that the American people will be content with achieving the kind of stability that precludes progress, that they will be content with the housing, the commercial and industrial buildings, the schools and bridges and highways and the communities they now have. But we do seem warranted in these conclusions:

1. If current population trends continue, the automatic increase of building demand, which has in the past enabled us to rely on individualistic speculative building projects to fill our needs and which has automatically lifted us out of depressions, tends to disappear.
2. Increased building activity will continue to accompany important new industrial, economic and social developments.
3. As opportunities for speculative real estate and building developments gradually dwindle away, the building industry will of necessity develop a sound economic plan, whose opportunities for substantial progress are all but impossible to estimate today.

We Can Build Civilized Communities If We Plan Intelligently and Pay as We Go

The kind of economic plan in consideration here is no doctrinaire program of action to be set in motion all at once by any national organization. The fundamentals of such a plan have been the

subject of study for many years. On the all-important subject of housing, the recent President's Conference on Home Building and Home Ownership brought together on a scale hitherto unknown in this country experts and expert information, in preparation for which 31 committees with 400 members worked for a year. In reports of the Conference committees and in their very valuable appendices of research data will be found the fundamentals of the economic plan for the building industry. This plan will evolve gradually as its principles are more and more put into practice. Its essence is that national organizations can be most effective in disseminating information on current designing and business practice, and on standards and objectives to be aimed at. Actual programs of action belong to neighborhoods, communities, towns and cities. Such programs would build on the basis of surveys of actual requirements and would utilize the best available thought and practice in technical improvements in building design, construction and finance, control of subdivision layouts, community planning and rehabilitation of blighted areas and slums, and wise regulation of property taxes. By such means can each community satisfy the legitimate desires of its people and create a sound demand for new construction in such volume as to register advances in the American standard of living. By such an economic plan property values may be stabilized. But inherent in a successful plan there is another set of obligations devolving particularly on the commercial and industrial sections of communities. If they wish to attract and keep the kind of population they want, and particularly if they want to promote home ownership on a sound basis, they will endeavor to secure for their communities such diversity of enterprises and such sound commercial structure as will give to larger and larger majorities of their people a sense of stability of employment and income. The change in trend of population growth is a turning point in our economic history; it is a challenge and an opportunity. We have always relied upon the methods of the frontier trading post and the mining camp to build the towns and cities of America. We are not satisfied with the results. We should not mourn the passing of a dying era, even though the transition to a newer and better one is a little painful. We can rebuild our cities and towns into civilized communities if we will only have the patience to plan intelligently and pay as we go.

●

PROSPECT FOR BUILDING AND ENGINEERING WORK

FIRST QUARTER, 1932

By L. SETH SCHNITMAN

The chart on page 6 shows total actual construction expenditures for the year 1931 to have been about 20 per cent below the assumed average annual requirements for the current decade. It was necessary for the purposes of that chart to reduce all figures to the 1913 cost basis; for the purposes of this chapter these figures are translated back into current dollars. Thus the 1931 construction volume at current costs approximated $4,000,000,000 as contrasted with an assumed average requirement of about $5,000,000,000. Further it has been indicated that the decade which will end with 1939 may likely produce a construction total, in 1913 dollars, only 16 per cent smaller than the epoch-making decade that ended with 1929. This, of course, is not a definite forecast but offered rather as an approximation of requirements for the present ten-year period.

On the basis of the same calculations total expenditures for new housing in 1931 were about 25 per cent below the assumed minimum average requirements or the current decade. At current costs the year 1931 showed approximately $1,250,000,000 to have been expended on housing throughout the United States, as against an assumed average requirement in this decade of about $1,650,000,000 at present values. In this connection housing is taken to include only one- and two-family houses and multiple-family dwellings or apartments, not hotels.

Although the gain in the total number of inhabitants during the current decade may not exceed 9,000,000, or about half the numerical increase during the previous decade, the population study clearly points out that even a stationary population requires new housing and structural facilities. Whether the year 1932 should begin to manifest a return to more normal activity in the provision of new housing is now difficult to say but one thing is certain: underneath prevailing conditions there is a demand gradually accumulating from which revival will eventually spring.

The figures of the National Association of Real Estate Boards last June showed that of 381 cities

reporting, 17 per cent had an actual shortage of single-family dwellings and 12 per cent had a shortage of apartments. It seems likely that these shortages indicated last summer have increased in the intervening months.

Although a revival of small house building is in the making, there are serious retarding factors which are operating to make difficult a statement, with any degree of definiteness, as to when that revival will set in. Continued real estate deflation, mortgage-bond defaults, foreclosures, high real estate taxes, threat of lower wage scales among building tradesmen—these are some of the more important direct influences retarding the revival. These factors are generally known, they are receiving careful consideration, and week by week the troubles inherited from the last boom are being gradually cured. One can scarcely say when the retarding factors will be removed, but when enough of them have been corrected building will be ready to increase on the basis of a sound demand.

F. W. Dodge Corporation has always stated in its annual estimates that an estimate for twelve months ahead is hazardous and that to be of value such forecasts should be revised at least once a quarter. Consequently in the light of present confused conditions it seems wiser to confine the present estimates to the first quarter of 1932, giving comparisons with quarters of 1931.

First Quarter Estimates

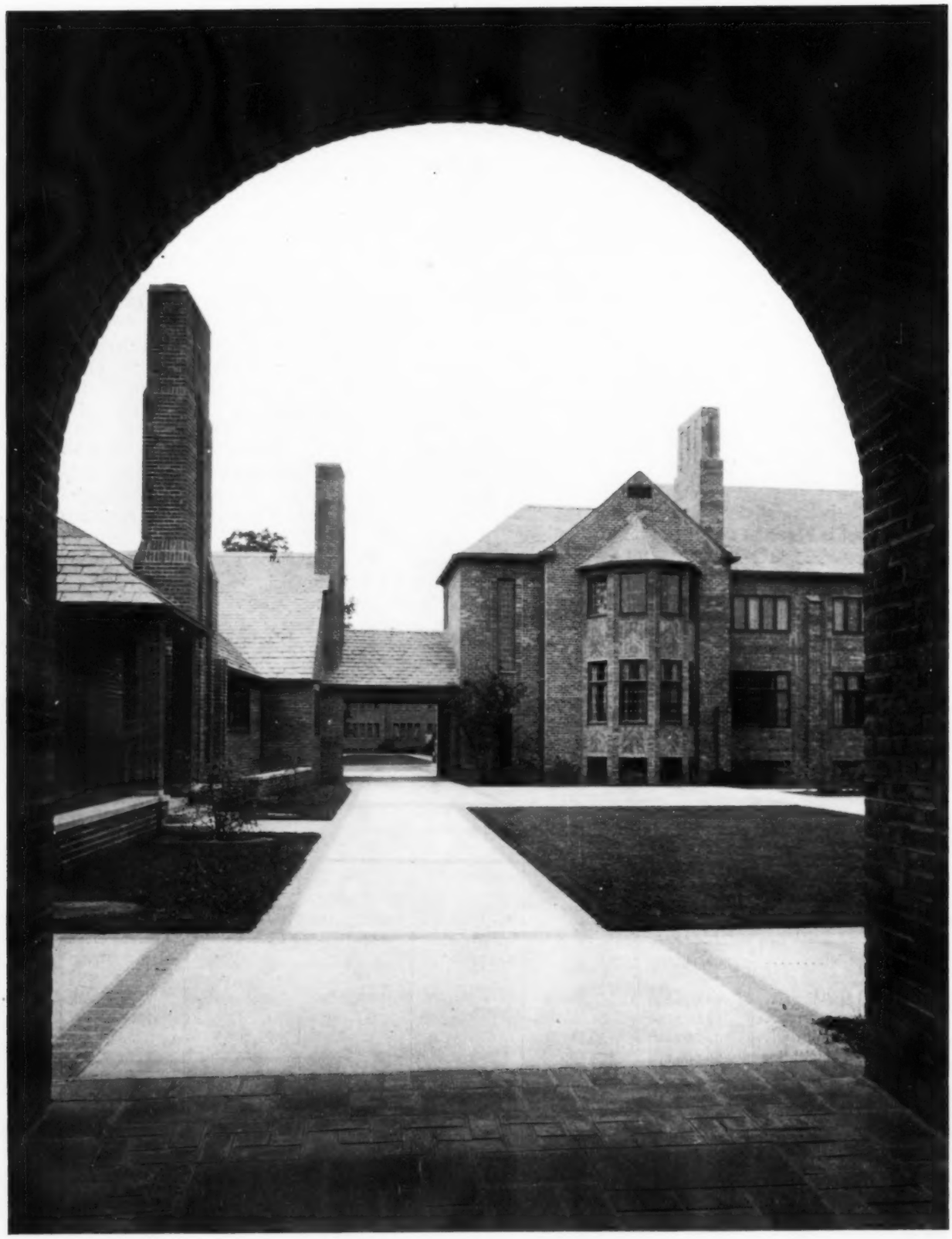
The first quarter of 1932 may produce a construction volume of $850,000,000 for the entire country, inclusive of low-cost new and alteration projects. Of this amount not more than $600,000,000 will represent the Dodge coverage in the 37 states east of the Rocky Mountains. If this total should be reached, residential building will probably approximate $180,000,000; nonresidential building will account for about $200,000,000 and public works and utilities should approximate $220,000,000. These indicated totals, representing the best that may be expected, in each instance mean losses from the corresponding quarter of 1931. On a percentage basis the first quarter estimates therefore show the following indicated losses from the same period in 1931: total construction, 20 per cent; residential building, 20 per cent; nonresidential building, 25 per cent; and public works and utilities, 30 per cent.

These estimates for the first quarter, if projected forward, would indicate a year's total fairly well below that of 1931. To estimate the entire year on this basis would overlook the possibility that a small-house building revival might occur in the spring. To estimate on the basis that such a revival will occur would be to stake too much on a highly uncertain possibility. The beginnings of such a revival, if there is to be one, would be likely to appear after March 15.

Construction Prospect 37 States East of the Rocky Mountains, First Quarter, 1932
(With 1931 Comparisons by Quarters)

TYPES OF CONSTRUCTION	1932	1931				
	First Quarter Estimates	First Quarter	Second Quarter	Third Quarter	Fourth Quarter*	Total Year 1931*
Total Construction	$600,000,000	$833,342,800	$959,151,900	$770,213,100	$520,290,100	$3,082,997,900
Total Nonresidential	$200,000,000	$274,561,200	$318,889,700	$317,196,800	$196,588,200	$1,107,235,900
Commercial Buildings	65,000,000	92,634,000	80,568,800	78,925,700	65,481,300	317,609,800
Factories	22,000,000	37,995,700	36,425,100	26,136,400	15,075,100	115,632,300
Educational Buildings	46,000,000	60,415,500	69,339,200	66,473,700	32,464,500	228,692,900
Hospitals and Institutions	20,000,000	25,606,300	35,288,600	34,256,600	21,850,400	117,001,900
Public Buildings	27,000,000	29,250,900	45,200,500	71,508,700	30,583,300	176,543,400
Religious and Memorial	6,000,000	9,859,700	18,354,500	17,368,600	7,155,300	52,738,100
Social and Recreational	14,000,000	18,799,100	33,713,000	22,527,100	23,978,300	99,017,500
Total Residential	$180,000,000	$233,205,900	$257,540,700	$178,648,100	$143,830,500	$813,225,200
1- and 2-Family Houses	115,000,000	137,592,300	189,947,700	139,107,700	108,463,100	575,110,800
Apartments and Hotels	65,000,000	95,613,600	67,593,000	39,540,400	35,367,400	238,114,400
Total Public Works and Utilities†	$220,000,000	$325,575,700	$382,721,500	$274,368,200	$179,871,400	$1,162,536,800

* December partly estimated.
† Public works and utilities, inclusive of highways, bridges, power plants, water and sewage systems, etc.



GOLD MEDAL AWARD, ARCHITECTURAL LEAGUE OF NEW YORK

BOYS' SCHOOL AT CRANBROOK, MICHIGAN — ELIEL SAARINEN, ARCHITECT

". . . romanticism achieves an expression of the most ingenious cleverness."

THE PRIZE-WINNING BUILDINGS OF 1931

REVIEWED BY

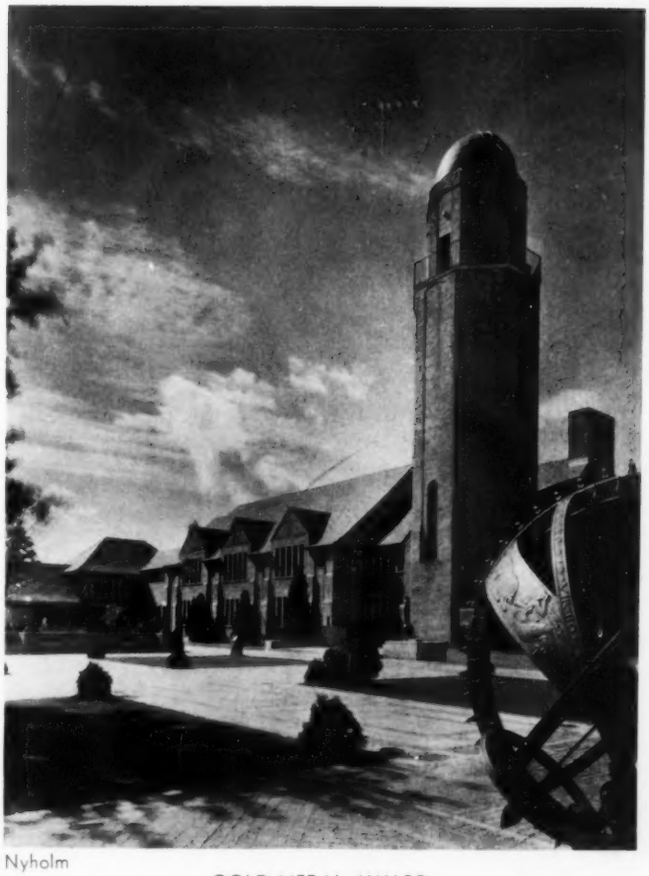
TALBOT FAULKNER HAMLIN, Architect

If anyone doubted the underlying romanticism of Americans, a little study of this album of photographs of recent prize-winning buildings in the United States should convert him at once.

It is strange to see even Eliel Saarinen, the creator of the Helsingfors Railway Station and the Second Prize Design in the Chicago Tribune Competition, falling so soon under the spell. In the Boys' School at Cranbrook, Michigan, awarded a gold medal by the New York Architectural League, romanticism achieves an expression of the most ingenious cleverness. Charm is always a dangerous architectural ideal: here it has led even Saarinen to use that old friend, decorative half-timber!

Architects as well as laymen, we are all still romantic, and if we all do "go functional," it will not be because of sound basic rational thinking, or any desire for a deep economy, but because we may develop a new romanticism of the machine, and worship it instead of life. Architects and laymen, both; for it is impossible to distinguish the awards made by architects as a class, from those made by Chambers of Commerce and similar bodies. Are the architects merely more sensitive to popular taste than other artists? Can one imagine the Author's League giving a prize to Harold Bell Wright or Zane Grey, or even Edgar Wallace? Surely architectural bodies in awarding prizes should not only demand high standards, but should, in preference, strive to encourage the new, the young, the creative rather than the merely tasteful. The judgment of architects should lead, not follow, popular demand. Even commercially it might not be a disadvantage to their own pocketbooks to do so, for the true artistic creative advance cannot be copyrighted; it soon becomes common property.

Obviously, the amount of available material limits these awards; and no outside critic can realize the complex tangle of psychologies filling even the most trivial jury room. The result is bound to be a compromise. And no one can cavil at the awards to the Empire State Building (Shreve, Lamb and Harmon), the Hollander Building (Shreve, Lamb and Harmon), or the Adler Planetarium (Ernest Grunsfeld). Yet taken as a class the whole group of commended buildings —judging largely from the photographs—seems strangely and discouragingly dull. Surely, one hopes, they do not completely represent the sum total of America's architectural development for the year.



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GOLD MEDAL AWARD
ARCHITECTURAL LEAGUE OF NEW YORK

BOYS' SCHOOL AT CRANBROOK," MICHIGAN
ELIEL SAARINEN, ARCHITECT

If these buildings are not representative of American architecture, they may have a value in representing American average taste, and an examination of them all may give some general idea of the direction in which our taste is moving.

The first and most obvious quality is that American taste has ceased to be local. With one exception—the foreman's house of the Brownell Ranch in Woodland, California, by Ellsworth Johnson and Warren Charles Perry—any of the premiated buildings would be equally at home in Maine or California, Michigan or Texas. If it is thus impossible to tell from the buildings themselves their locale, it is obvious that in buildings—as, apparently, in many commodities—the preference of the juries was for the standardized product in the Nationally Advertised Package.

Now this is perhaps inevitable, movies and magazines and syndicated articles being what they are, but it is neither rational nor desirable. A newsstand may look the same from coast to coast, and the silver screen flicker daily with precisely the

Wallace

CHESTNUT STREET ASSOCIATION MEDAL, 1929

WHITMAN'S STORE IN PHILADELPHIA — EDMUND B. GILCHRIST, ARCHITECT

". . . it is marble and metal and glass, not the historical style, that set the character."

Wallace

CHESTNUT STREET ASSOCIATION MEDAL, 1929
RETAIL STORE FOR S. F. WHITMAN AND SON, INC., IN PHILADELPHIA
EDMUND B. GILCHRIST, ARCHITECT

same moving shadows in Spokane and St. Augustine, yet the climates of Washington and Florida are different, the locally obtainable materials are different, and types of life and human attitudes differ so widely from region to region that it would seem impossible that such diverse ideals should find expression in such uniform buildings. This standardization of taste is increasing hourly, yet it is a sterile movement.

The second generality is that taste, while not radical in matters of style, seems to be at least freed of archæological trammels. What archæological design there is, is so varied in period that no particular trend can be deduced. Classical detail, medieval detail, modernist detail all jostle each other in this portfolio. Can it be that the public has at last become satiated with all style propaganda, classic, medieval, functional, good and bad alike?

Another quality in popular taste is an obvious delight in glittering modern materials—the glitter of metal, the rich and varied luster of marble in great areas, the suave and mysterious transparence and reflection of plate glass. This quality is manifest in the shimmering verticals of the Empire State Building and in the rich black and silver of the Hollander; it is the obvious appeal of the marble and metal of the Greene shop in Dallas (DeWitt and Washburn); in Edmund Gilchrist's Whitman shop in Philadelphia it is marble and metal and glass, not the historical style, that set the character. Between the interesting metal of the exterior (though perhaps not logical or functional in form), and the shiny black reflecting surfaces and interestingly placed electric lights of the interior lunch room, how pale, how stilled, how without excitement or thrill appears the delicate Renaissance of the intermediate shop room.

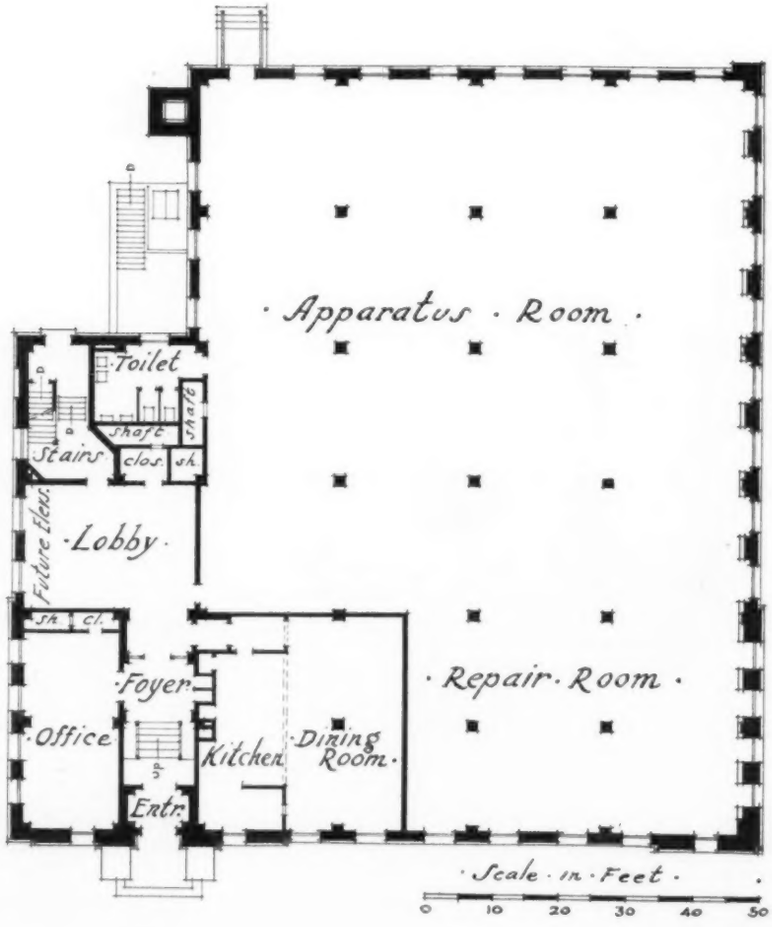
The last, and by far the most important quality of popular taste that is evident in this group of buildings, is an almost wistful search for beauty and especially beauty of composition. This taste is not interested in logic, in matters of construction, in theoretical expressiveness; it is apparently, and surprisingly, deeply interested in form relationships. Surely the Brooklyn Chamber of Commerce in its award to the New York Times Branch Building by Albert Kahn, Inc., was moved not only by beauty of execution and material, and was entirely unmoved by obvious artistic inconsistencies, like the varying horizontal movements, and the strong masonry expression of the whole, which so thoroughly belies the actual construction. What moved this jury was beauty of abstract proportion, and also undoubtedly an appearance—all too rare in our cities—that the whole building had been thought out and "taken care of" in adequate form. Likewise a certain basic satisfactoriness of proportional relations is behind the award of the Los Angeles Chapter of the A. I. A. to the Memorial Club House (Weston and Weston) for the Hollywood Post 43 of the American Legion, rather than any deeper considerations of material or detail. Another similar search for a form quality—in this case a desire for monumentality—must be the basis of the Detroit Chapter's Award to the Kresge Administration Building, by Albert Kahn. Could it be anything else than big compositional facts—the existence of entrance and end motives and connecting wings, with the shadow and variety they produce—which could account for the commendation (and by architects) of a whole so obviously incoherent, of a building whose upper and lower portions are so diverse, so disconnected?

MEDAL AWARD OF CLEVELAND CHAMBER OF COMMERCE

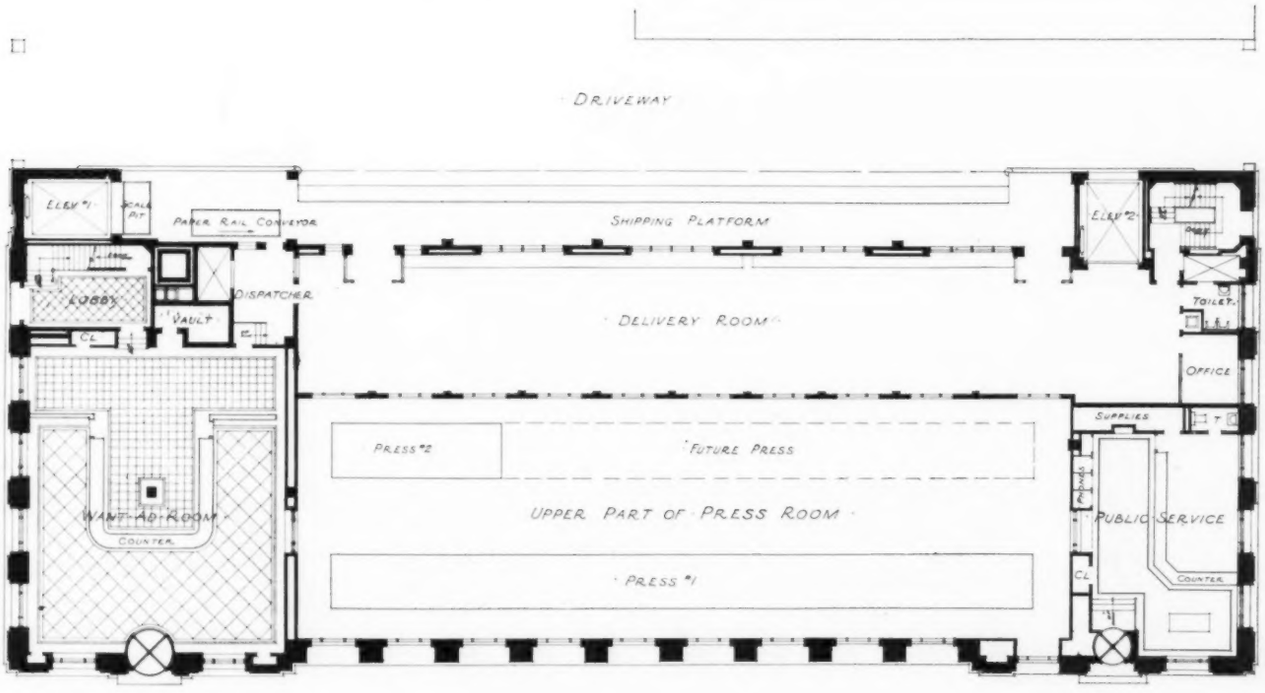
FOR COMMERCIAL BUILDINGS NOT OVER THREE STORIES IN HEIGHT

MICHIGAN-DIAMOND OFFICE BUILDING FOR THE OHIO BELL TELEPHONE COMPANY IN CLEVELAND

HADLOW, HUGHES, HICK AND CONRAD, ARCHITECTS



N. Y. Times Studio

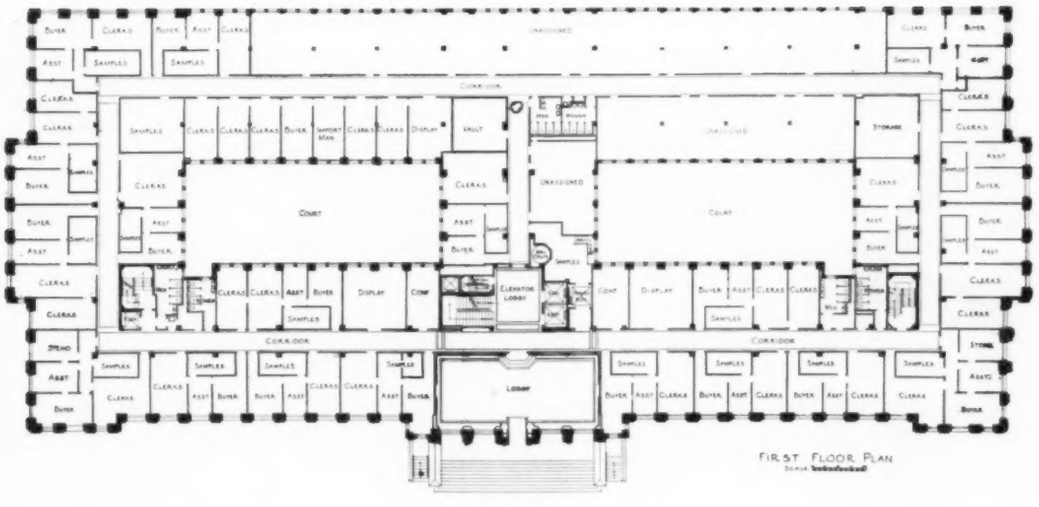


BROOKLYN CHAMBER OF COMMERCE AWARD

BROOKLYN BRANCH BUILDING FOR NEW YORK TIMES — ALBERT KAHN, INC., ARCHITECTS

". . . What moved this jury was beauty of abstract proportion."

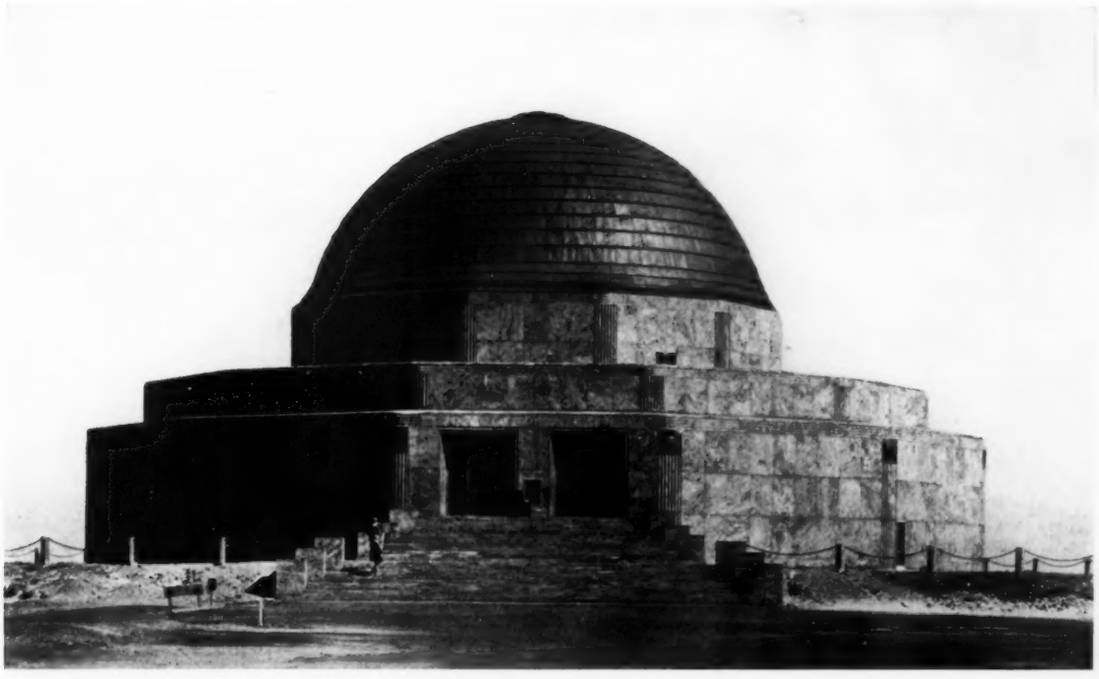
Ellison



HONOR AWARD OF THE DETROIT CHAPTER, A. I. A.

S. S. KRESGE ADMINISTRATION BUILDING, DETROIT — ALBERT KAHN, INC., ARCHITECTS

". . . another search for a form quality — in this case a desire for monumentality."



Fuermann & Sons

GOLD MEDAL AWARD OF THE CHICAGO CHAPTER, A. I. A.

ADLER PLANETARIUM, CHICAGO — ERNEST A. GRUNSFELD, JR., ARCHITECT

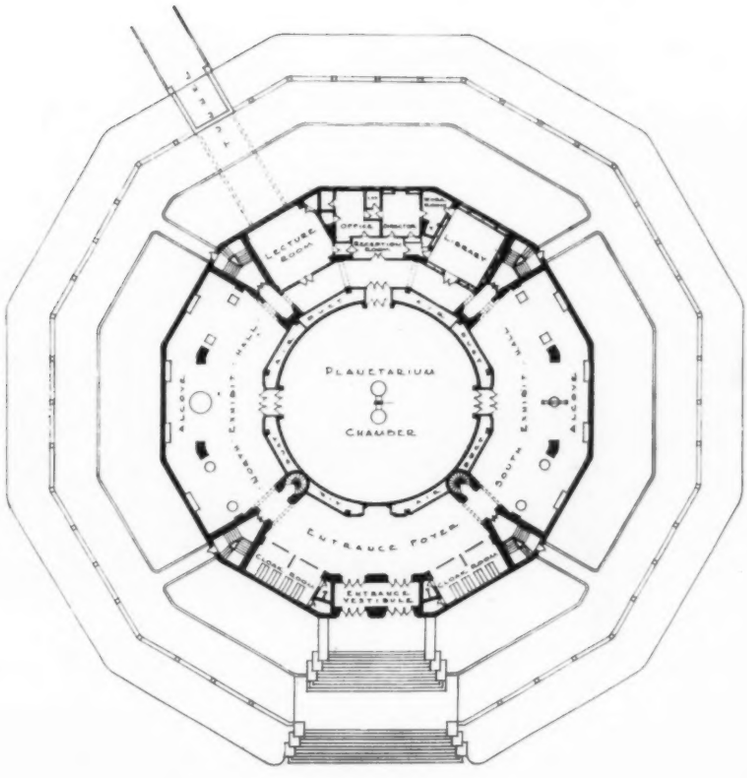
". . . simple, dignified, beautifully planned."

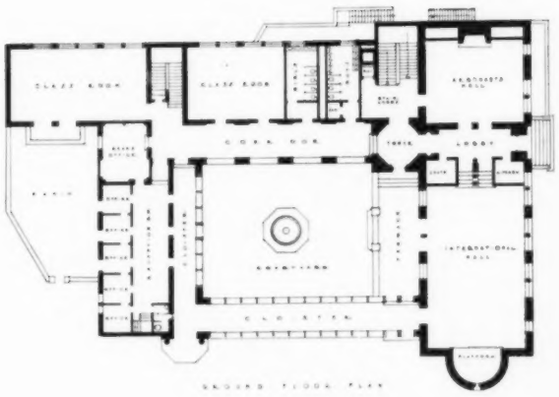
Fuermann & Sons

GOLD MEDAL AWARD
CHICAGO CHAPTER, A. I. A.
ADLER PLANETARIUM IN CHICAGO

ERNEST A. GRUNSFELD, JR.
ARCHITECT

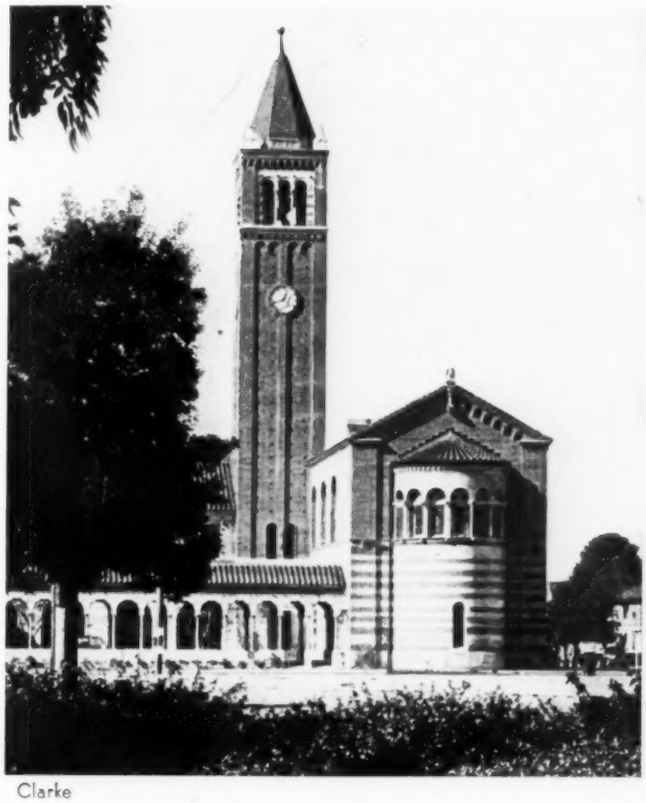
". . . mere size, and the current and unwise deification of the sky-scraper have not influenced this decision."





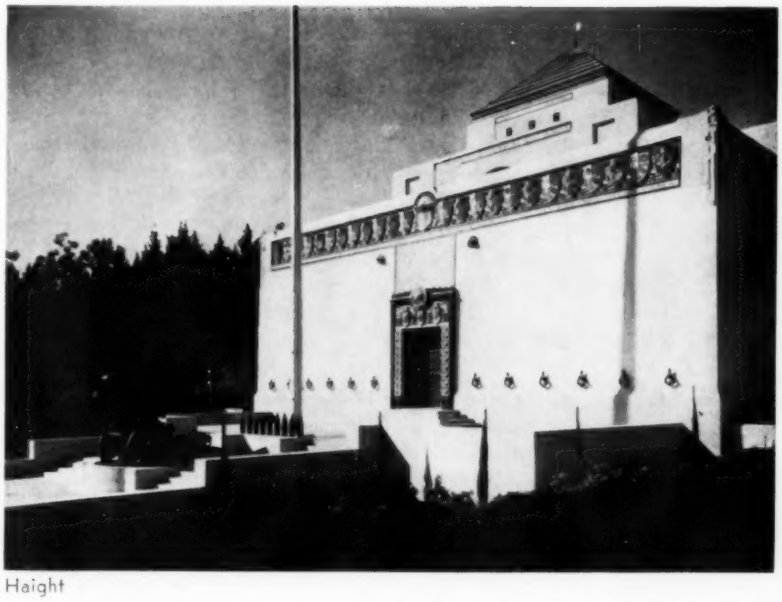
GOLD MEDAL AWARD
LOS ANGELES ART ASSOCIATION

SEELEY WINTERSMITH MUDD MEMORIAL
HALL OF PHILOSOPHY, UNIVERSITY OF
SOUTHERN CALIFORNIA
RALPH C. FLEWELLING, ARCHITECT



Clarke

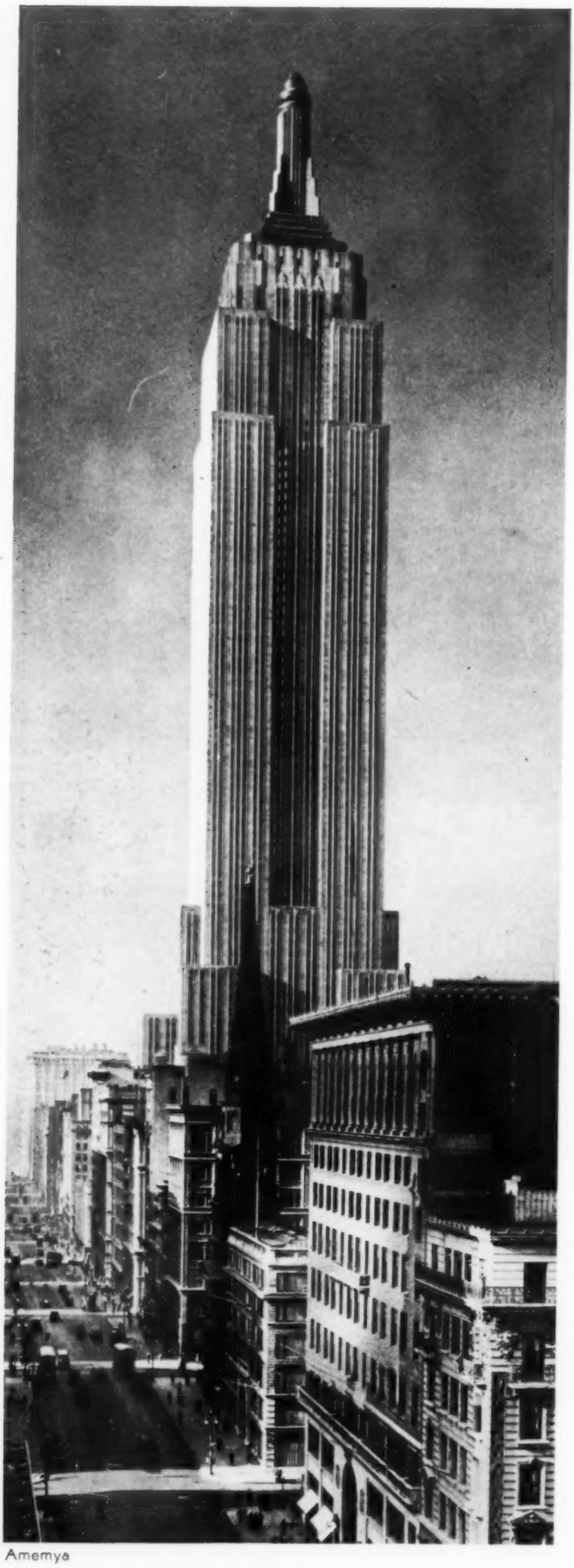
". . . its Italian Romanesque detail is polished and suave."



Haight

BRONZE MEDAL, LOS ANGELES ARTISTS FIESTA
HOLLYWOOD POST 43, AMERICAN LEGION, MEMORIAL CLUBHOUSE
WESTON AND WESTON, ARCHITECTS

". . . a pleasant handling of the concrete wall, and pleasant, unexciting proportions."



Amemya

The Buildings Themselves

Four buildings stand out from the mass as exceptional: the Empire State and the Hollander Building, New York, both by Shreve, Lamb and Harmon; the Adler Planetarium by Ernest Grunsfeld; and the Grand Street Apartments by Springsteen and Goldhammer.

The tower of the Empire State Building is obviously an artistic creation of high value. Its acceptance by the people as a whole is remarkably unanimous and complete, and such expressions of popular approval, when so strikingly universal, are seldom far wrong. It uses masonry, but obviously as a skin, not as a support. The proportions of the setbacks are fine; there is strength and dignity in them. The verticals of bright metal are superb; the manner in which they pick up the color of the sky, or flash back the brilliance of the sun, as though the whole tower were hung on a framework of light itself, has not only that feeling of delicacy which is peculiarly the spirit of steel construction, but also a deeper quality, an authentic beauty that is a new note, a new creation.

But this tower supports a question, and is supported on an anticlimax. Surely the so-called mooring mast—a pure extravagance, perhaps for publicity's sake, which can never be used effectively for its avowed purpose, and which the designers must have realized could not be so used—surely that does not belong with the sureness, the definiteness below it. Rich and interesting as the detail is, there is something inconclusive and soft in the silhouette that expresses this dubiousness of function. By day or night, under sun or cloud or ringed with electric lights, the mast seems unreal.

And the street and avenue façades are a disappointment. As in the case in so many high buildings, a soaring and carefully composed grandeur above disintegrates near the ground level. Great tower scale and pleasant street scale seem difficult to reconcile. The Empire State Building architects recognized this inevitable discrepancy, and by placing the tower as it is, freed it from the building around its base. They created thus a great street façade of pleasing height, a whole block long on Fifth Avenue, and several hundred feet on each of the side streets: apparently, an ideal problem for any architect. And then, apparently the creative drive faded; perhaps speed in designing—the curse of American commercial architecture—prevented adequate study; perhaps the tower absorbed the designers' interest over-much. In any case, there lay the opportunity, and it was lost. Superficial and obvious, its generally merely satis-

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GOLD MEDAL AWARD
ARCHITECTURAL LEAGUE OF NEW YORK

EMPIRE STATE BUILDING, NEW YORK
SHREVE, LAMB AND HARMON, ARCHITECTS

factory proportions, its rich materials cannot redeem its heavy-handed detail, its basic lack of that creative imagination that distinguishes the tower. To the thousands passing, it brings no lift, no "kick"—it is just another building to walk past —adequate perhaps, but humdrum.

The Hollander Building award of the Fifth Avenue Association is delightful notice that the layman is aware of other things than size. Here again the masonry is obviously a skin; it is a modern building from curb to roof. Its proportions, simple as they are, are studied, restful, right, and the metal and glass sweep of the front is rich and delightful. The minor details of the ornament are, perhaps, not of the originality and perfection an idealist might demand; they are generally of a so-called "modernist" type that is becoming as stereotyped, as eolectic, as any classic acanthus; yet they modulate the metal surfaces pleasantly, and are well placed. In color, pattern and general richness the whole design has achieved an exquisite unity that is a distinct contribution to city street-front design.

The Chicago Chapter has won itself honor in awarding its medal to the Adler Planetarium. Here again it is a delight to see that mere size, and the current and unwise deification of the skyscraper have not influenced the decision. Grunsfeld's building has definitely "arrived." Simple, dignified, beautifully planned, it has as well that perfection of space relation which warrants the application to it of the term "classic."

There is not much to say of the other commercial and public building awards. Flewelling's Hall of Philosophy at the University of Southern California is full of a placid and academic charm, its Italian Romanesque detail is polished and suave. But somehow its cloister looks arranged—a piece of stage scenery, or a museum specimen—and not like a place for American students, even graduate students, to bask in the sun and to talk.

The Hollywood American Legion Building has a pleasant handling of the concrete wall, with exposed form-marks to give it texture, and pleasant, unexciting proportions. But its faience detail, however technically excellent (it received a ceramics prize in 1929), is sentimental and ostentatious. Perhaps it enshrines with unconscious and cynical perfection the bombastic declaration of purpose so painstakingly lettered above the door.

The pedestrian quality of some of the remaining premiated buildings is perhaps to be expected. One hopes, of course, for more. Even if there is no originality of detail, no startling greatness of conception, at least there should be adequacy. The

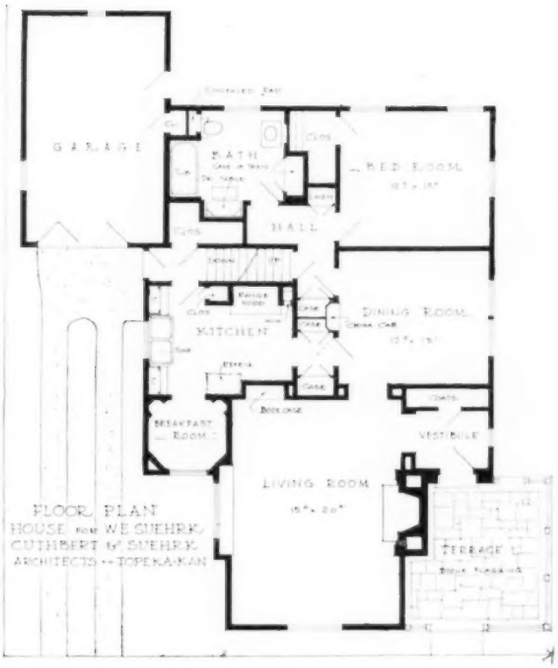
GOLD MEDAL AWARD
FIFTH AVENUE ASSOCIATION

L. P. HOLLANDER CO. BUILDING, NEW YORK
SHREVE, LAMB AND HARMON, ARCHITECTS

Fischer

Wolp

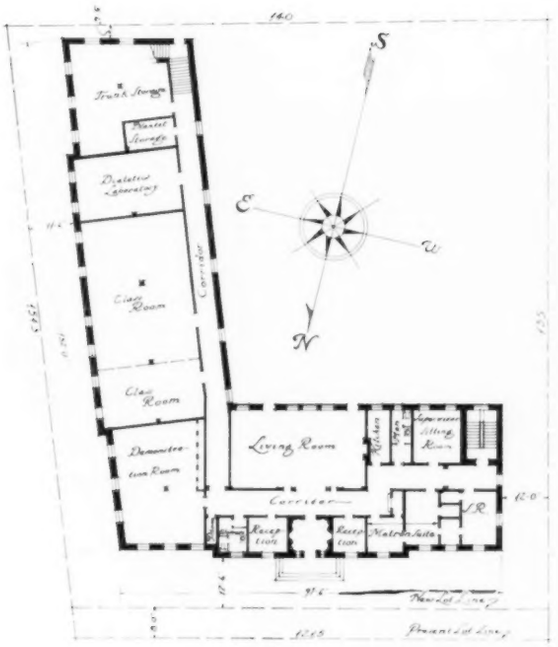
HONOR AWARD, KANSAS CHAPTER, A. I. A.
HOUSE OF W. E. SUEHRK, TOPEKA, KANSAS
CUTHBERT AND SUEHRK, ARCHITECTS



HONOR AWARD OF THE KANSAS CHAPTER, A. I. A.
HOUSE OF MRS. ALICE MOSSES, GREAT BEND, KANSAS — MANN AND CO., ARCHITECTS

Manning Bros.

HOUSE BEFORE REMODELING



HONOR AWARD, NORTH CAROLINA CHAPTER, A. I. A.
E. D. LATTA NURSES' HOME, ASHEVILLE, N. C.
LORD AND LORD, ARCHITECTS

FIRST FLOOR PLAN

HONOR AWARD OF THE NORTH CAROLINA CHAPTER, A. I. A.
HOUSE OF LOUIS LIPINSKY, ASHEVILLE, N. C. — HENRY I. GAINES, ARCHITECT

HOUSE AFTER REMODELING

HONOR AWARD
DETROIT CHAPTER, A. I. A.

HOUSE OF JOHN B. FORD, JR., DETROIT
ROBERT O. DERRICK, INC., ARCHITECTS

Gottscho

1930 MEDAL AWARD, NEW YORK CHAPTER, A.I.A.
GRAND STREET APARTMENTS FOR AMALGAMATED HOUSING CORPORATION, NEW YORK
SPRINGSTEEN AND GOLDHAMMER, ARCHITECTS

". . . an award that looks toward the future and not the past."

Ellison

HONOR AWARD, DETROIT CHAPTER, A. I. A.

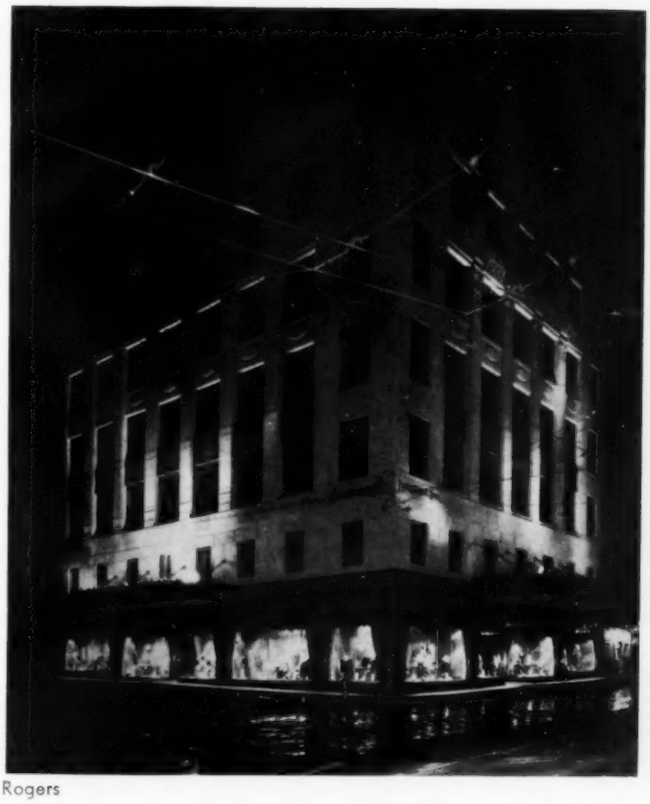
HOUSE OF EDSEL B. FORD, GROSSE POINTE SHORES, MICH. — ALBERT KAHN, INC., ARCHITECTS

". . . a splendor sentimental and bookish."

spectacle of local chapters of the American Institute of Architects dignifying with honor awards buildings not only banal and reminiscent in detail, but full of the most egregious and inexcusable ineptitudes is shockingly disheartening.

The cult of the dull, the ordinary, is nowhere better seen than in the house awards. The splendor of Edsel Ford's mansion is a splendor sentimental and bookish, unrelieved by personal charm. The small houses in general are similarly uninspired. The picturesqueness of skintled brick, hit-or-miss stone and false half-timber is here held up to our admiration. Only the foreman's cottage of the Brownell Ranch is an exception. The use of vertical boards and battens is convincing because it is obviously one logical way of using wood, not because of its Victorian flavor, and the simple, straightforward plan suggests directness; the forms seem natural for the problem and the site.

It was inevitable that sooner or later the "modernist" fashion should achieve its fit architectural expression. In the "modern" Tyng house at Southampton there is a complete and expensive example. It is the fashionable interior decorator's approach to design. just as one hears of so and so saying, "I've had my bedroom redone modern," and one sees at once a picture of typical modern knick-knacks and decorators' furniture superficially assembled, so here all the fashionable modernist architectural *clichés* are assembled in the same spirit. It is modernism as style, pure and simple, put on and off like a dress. Waist-lines are higher this year and skirts are longer. Well, what of it? Of the deep underlying bases of modern architecture, not a trace. It is a *grande dame* of ten years



Rogers

HONOR AWARD, "NEW BUILDINGS" — COMPETITION SPONSORED BY DALLAS RETAIL MERCHANTS ASSOCIATION AND NORTH TEXAS CHAPTER, A. I. A.

DREYFUS AND SON STORE, DALLAS, TEXAS

ALONZO H. GENTRY AND LANG AND WITCHELL, ASSOCIATED ARCHITECTS

Gottscho

1930 MEDAL AWARD, NEW YORK CHAPTER, A. I. A.
GRAND STREET APARTMENTS FOR AMALGAMATED HOUSING CORPORATION, NEW YORK
SPRINGSTEEN AND GOLDHAMMER, ARCHITECTS

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HOUSE OF EDSEL B. FORD, GROSSE POINTE SHORES, MICH. — ALBERT KAHN, INC., ARCHITECTS

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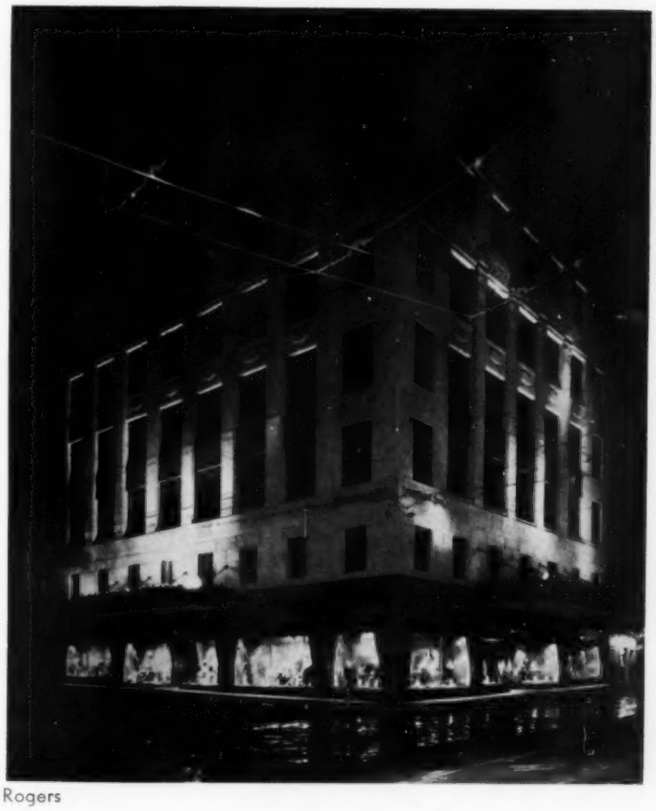


Rogers

HONOR AWARD, "NEW BUILDINGS" — COMPETITION SPONSORED BY DALLAS RETAIL MERCHANTS ASSOCIATION AND NORTH TEXAS CHAPTER, A. I. A.

DREYFUS AND SON STORE, DALLAS, TEXAS

ALONZO H. GENTRY AND LANG AND WITCHELL, ASSOCIATED ARCHITECTS

ONE OF THREE HOUSES TIED FOR FIRST PLACE
SMALL HOUSE COMPETITION

FOREMAN'S HOUSE, BROWNELL RANCH, WOODLAND, CALIF.
JOHNSON AND PERRY, ARCHITECTS

Gottscho

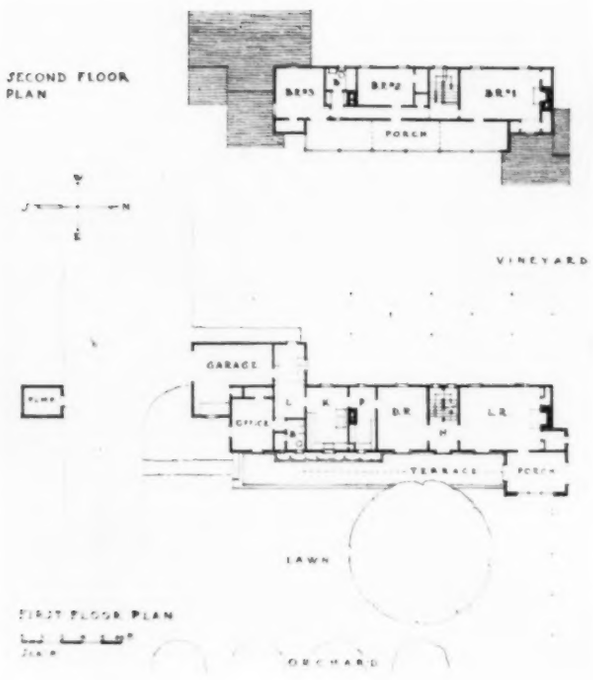
SILVER MEDAL AWARD
ARCHITECTURAL LEAGUE OF NEW YORK

HOUSE OF L. H. TYNG, SOUTHAMPTON, LONG ISLAND
PEABODY, WILSON AND BROWN, ARCHITECTS

Rogers

HONOR AWARD — "REMODELED BUILDINGS"
NORTH TEXAS CHAPTER, A. A. A.

W. A. GREEN STORE, DALLAS, TEXAS
DEWITT AND WASHBURN, ARCHITECTS



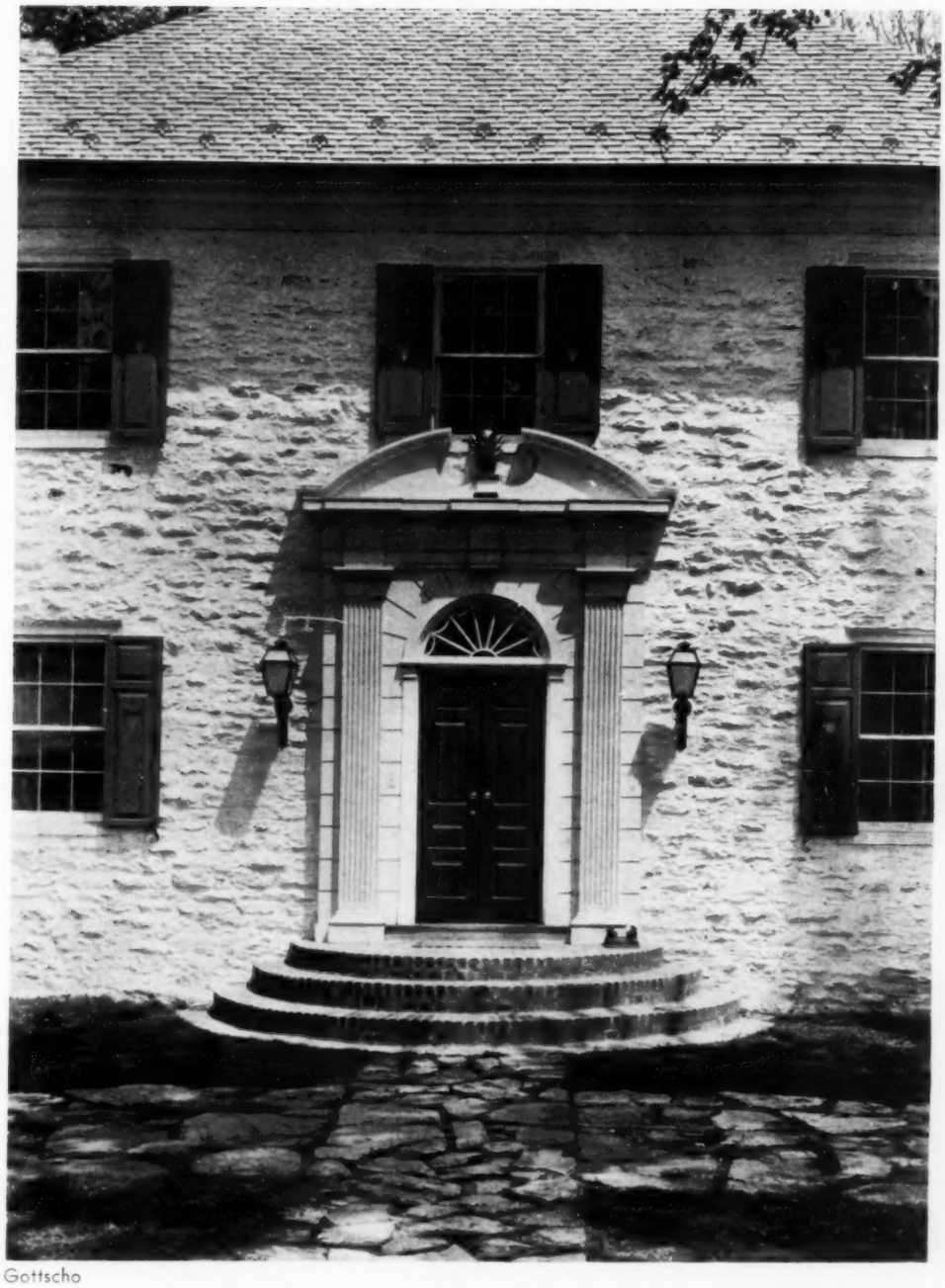
ago dressed up to go to the current Beaux Arts Ball—*Costume Moderne*.

The New York Chapter Tenement House Award to Springsteen and Goldhammer's Grand Street apartments is on a different and a more encouraging plane. Here it is obviously not the dress that is important, but the person. It is not horizontal banding or parabolic arches that are commended, but plan and land usage; it is light and air and green of growing things. The dress is open to criticism; larger windows might be desirable, and in the court recesses with the fire-escapes the group is just plain tenement. Sun in a city, the sweep of air, and the elimination of dirty and unkempt backyards—these are realities that are beyond criticism.

The plan has been criticized as too basically conservative, of begging the real question of city housing, of giving apartments at $12 a room when the crying need was for housing at $6 a room. Of course that is true. What the Europeans call the minimal house is still in America an unsolved problem. But that is a problem for financiers and sociologists to solve before the architects can even experiment, except on paper. Architecturally, here at last is an award that shows a jury looking below the surface, judging realistically. Here, at last, is an award that conjures up a little hope for a city of the future more open, more airy, more sunny, contriving to get within its building lot lines some of that greenery and openness which the greed of real estate speculation, the stupidity of early town planners, and the complete subservience of municipal politics to commercial interests have combined to deny us in our American city layouts. Here, at last, is an award that looks toward the future and not the past.

PORTFOLIO OF CURRENT ARCHITECTURE

JANUARY 1932



Gottscho

HOUSE OF AMORY S. CARHART AT WARRENTON, VIRGINIA
BOTTOMLEY, WAGNER AND WHITE, ARCHITECTS

OTHER BUILDINGS ILLUSTRATED IN THIS PORTFOLIO:

STARRETT-LEHIGH BUILDING, NEW YORK CITY — Russell G. and Walter M. Cory, and Yasuo Matsui, Associate Architects.

KENWOOD MILLS, INC., SHOP, IN THE MICHIGAN SQUARE BUILDING, CHICAGO — Holabird and Root, Architects.

Gottscho

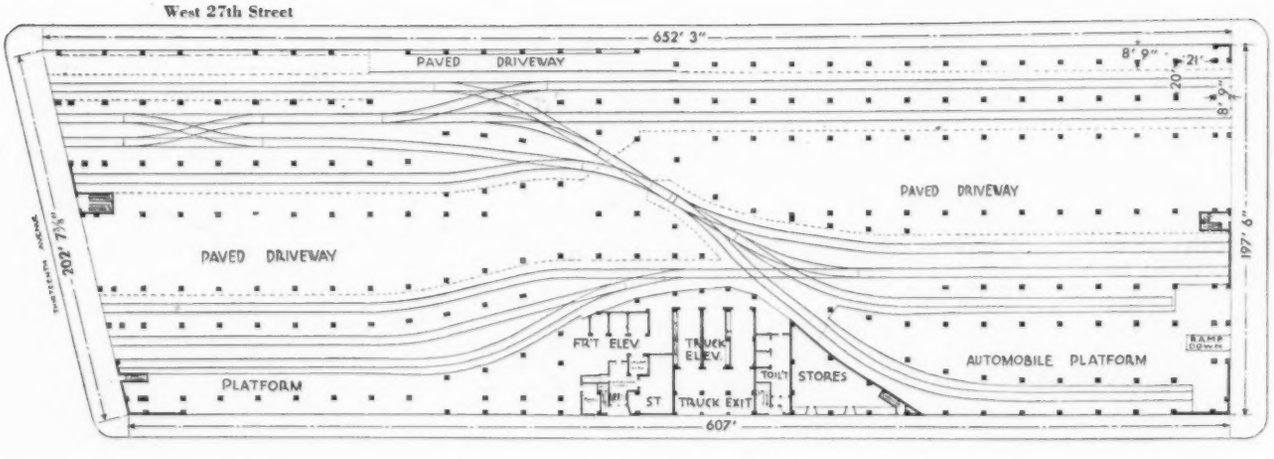
HOUSE OF AMORY S. CARHART
WARRENTON, VIRGINIA
BOTTOMLEY, WAGNER AND WHITE, ARCHITECTS

Landscaping by Charles F. Gillette, Interior decoration by Ernesta Beaux.

Gottscho

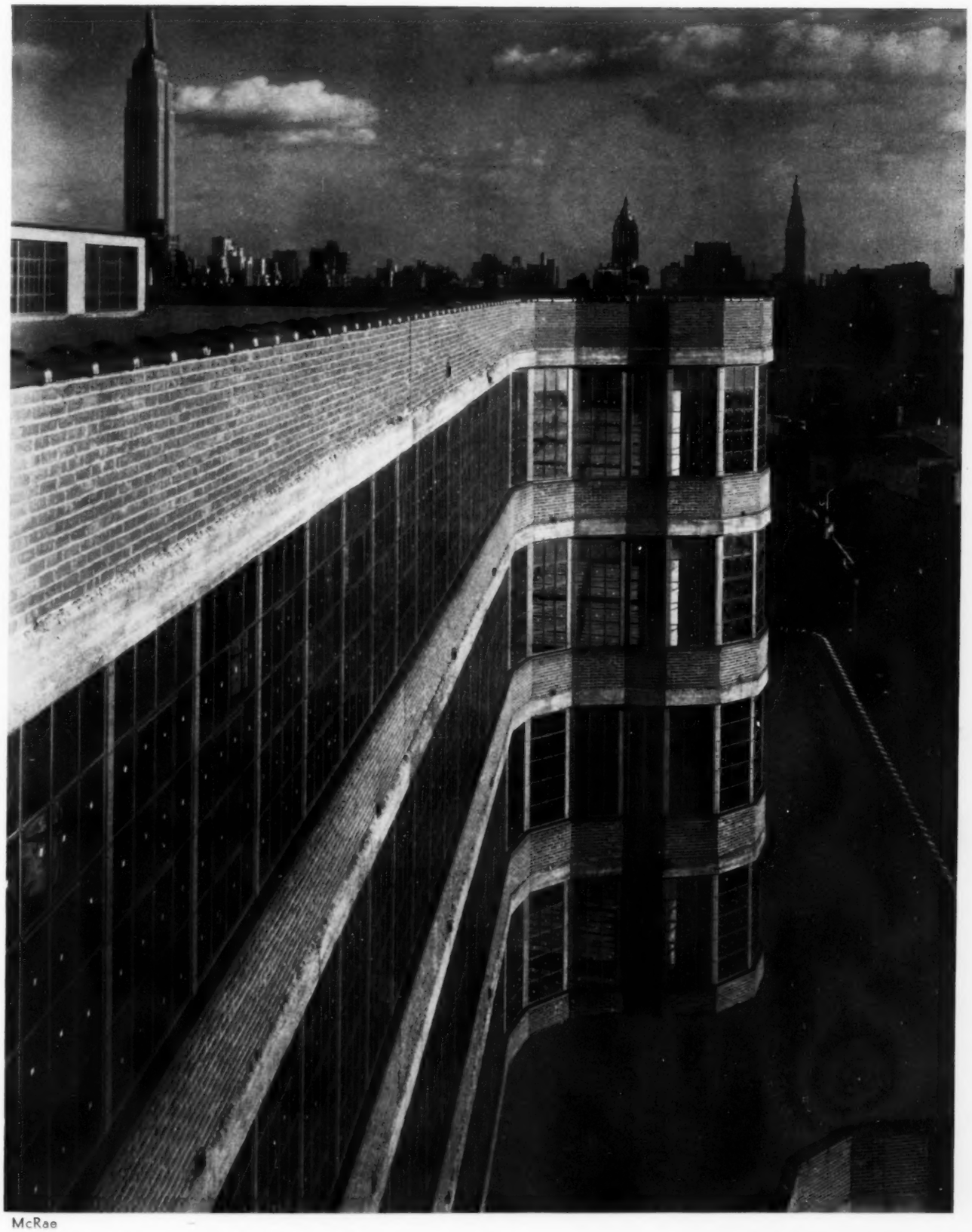
Exterior finished in whitewash, applied heavily over stone walls and wood siding. Faded green blue shutters, dark bottle green doors, dark Virginia slate roof.

HOUSE OF AMORY S. CARHART
WARRENTON, VIRGINIA
BOTTOMLEY, WAGNER AND WHITE, ARCHITECTS



STARRETT-LEHIGH BUILDING, NEW YORK
RUSSELL G. AND WALTER M. CORY,
YASUO MATSUI, ASSOCIATE ARCHITECTS

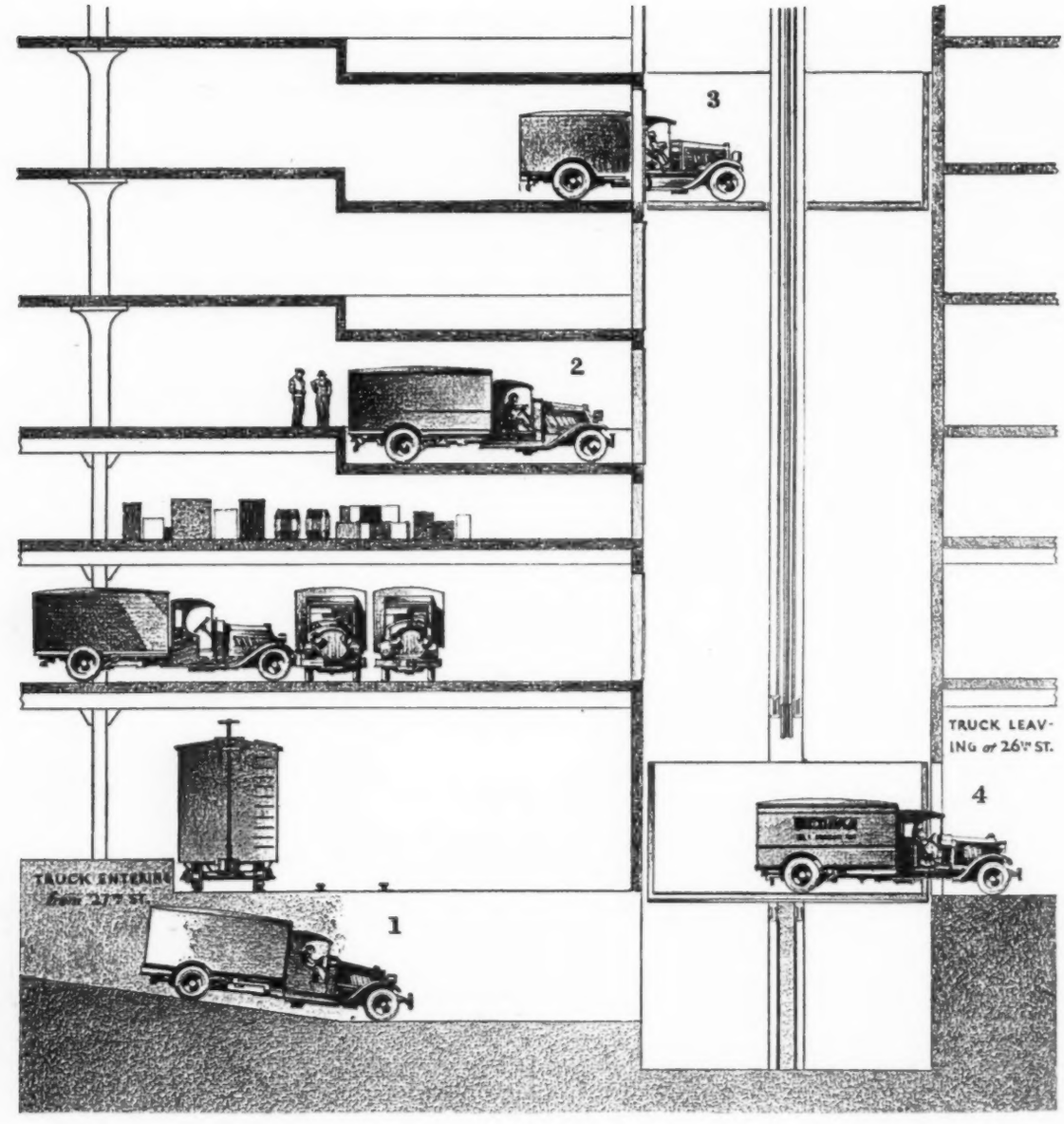
This building is a manufacturing and distributing center erected over the Lehigh Valley Freight Terminal tracks in New York City. The ground floor is used entirely for handling of freight.

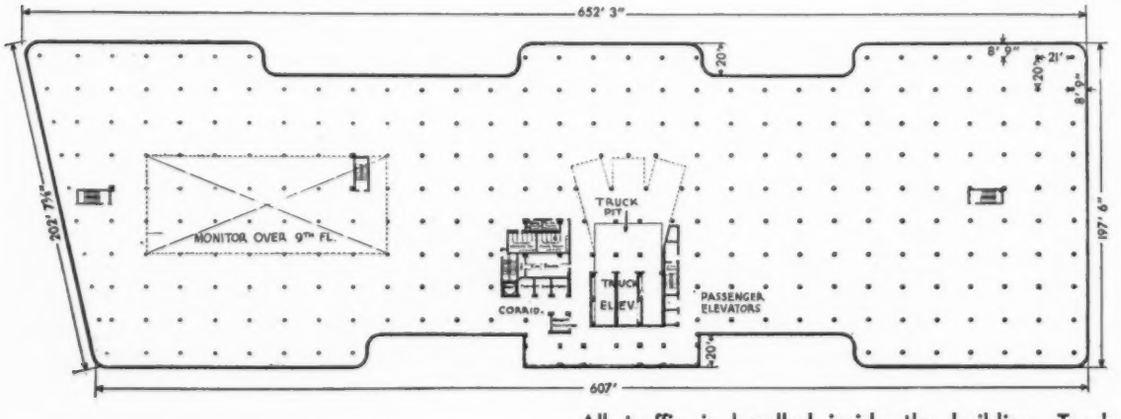


McRae

There are 124,000 square feet on each of six floors, with as much as 652 feet of straightaway for line production. Supporting columns are 20 to 21 feet on centers, with 13'4" floor heights.

STARRETT-LEHIGH BUILDING, NEW YORK
RUSSELL G. AND WALTER M. CORY,
YASUO MATSUI, ASSOCIATE ARCHITECTS

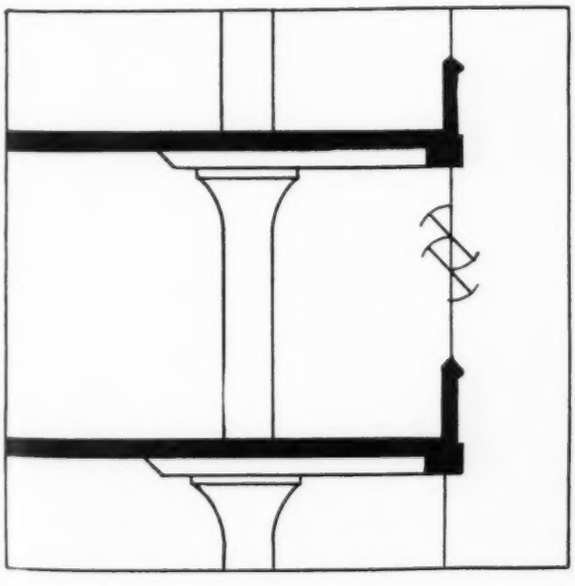


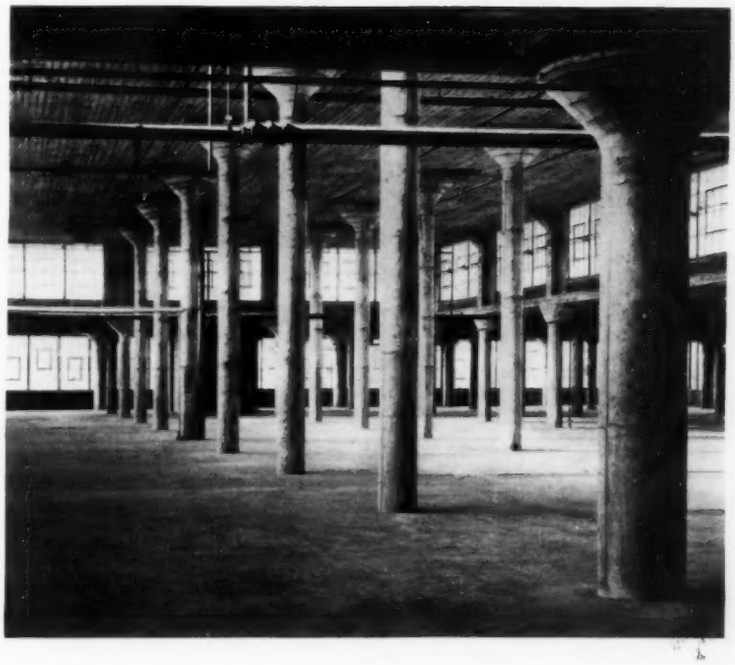


STARRETT-LEHIGH BUILDING, NEW YORK
RUSSELL G. AND WALTER M. CORY,
YASUO MATSUI, ASSOCIATE ARCHITECTS

All traffic is handled inside the building. Trucks enter from street, (1) underpass the railroad tracks and are taken to desired floors by elevators; (2) they back into pits of 9-truck capacity; (3) after loading or unloading, they descend, and (4) exit without having had to turn around.

McRae



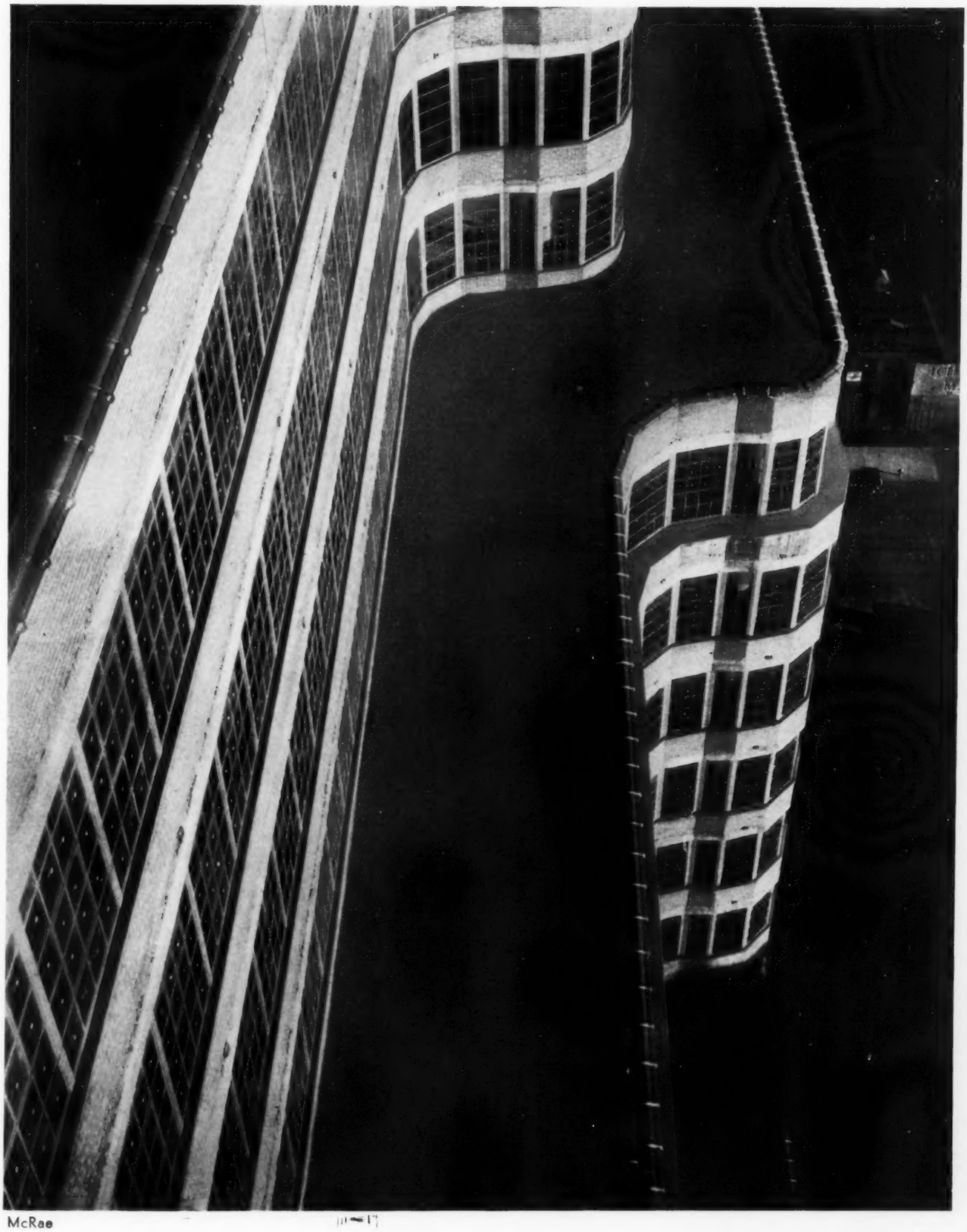


Floors are of concrete slab construction. The outer row of columns on all floors is set back 8'9" from the outer walls. This permits use of continuous windows which creates a comparatively shadowless interior.

STARRETT-LEHIGH BUILDING, NEW YORK
RUSSELL G. AND WALTER M. CORY,
YASUO MATSUI, ASSOCIATE ARCHITECTS

McRae

STARRETT-LEHIGH BUILDING, NEW YORK
RUSSELL G. AND WALTER M. CORY,
YASUO MATSUI, ASSOCIATE ARCHITECTS

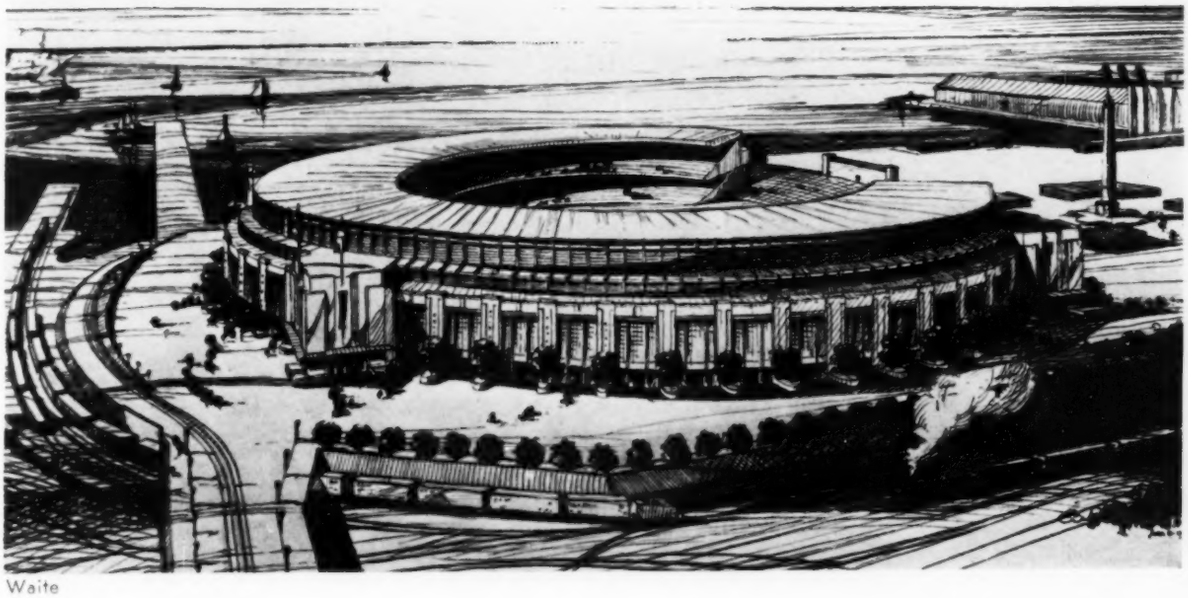


McRae

STARRETT-LEHIGH BUILDING, NEW YORK
RUSSELL G. AND WALTER M. CORY,
YASUO MATSUI, ASSOCIATE ARCHITECTS

Hedrich-Blessing

KENWOOD MILLS, INC., SHOP
MICHIGAN SQUARE BUILDING, CHICAGO
HOLABIRD AND ROOT, ARCHITECTS



Waite

MUNICIPAL STADIUM IN CLEVELAND

WALKER AND WEEKS, ARCHITECTS — OSBORN COMPANY, ENGINEERS

The Cleveland Stadium has been designed to accommodate outdoor gatherings comfortably. Facilities are provided for large crowds to witness baseball and football games, track meets, boxing matches, conventions, concerts and grand opera, pageants, circus performances, and other spectacles.

In 1928, by vote of the citizens, a bond issue of $2,500,000 was provided to cover the cost of the project. After a preliminary study of existing stadiums, the lake front of the Mall, northwest of the Cleveland Court House, was selected as offering best facilities for the gathering of large crowds. Construction of the stadium was started June, 1930, and completed July, 1931.

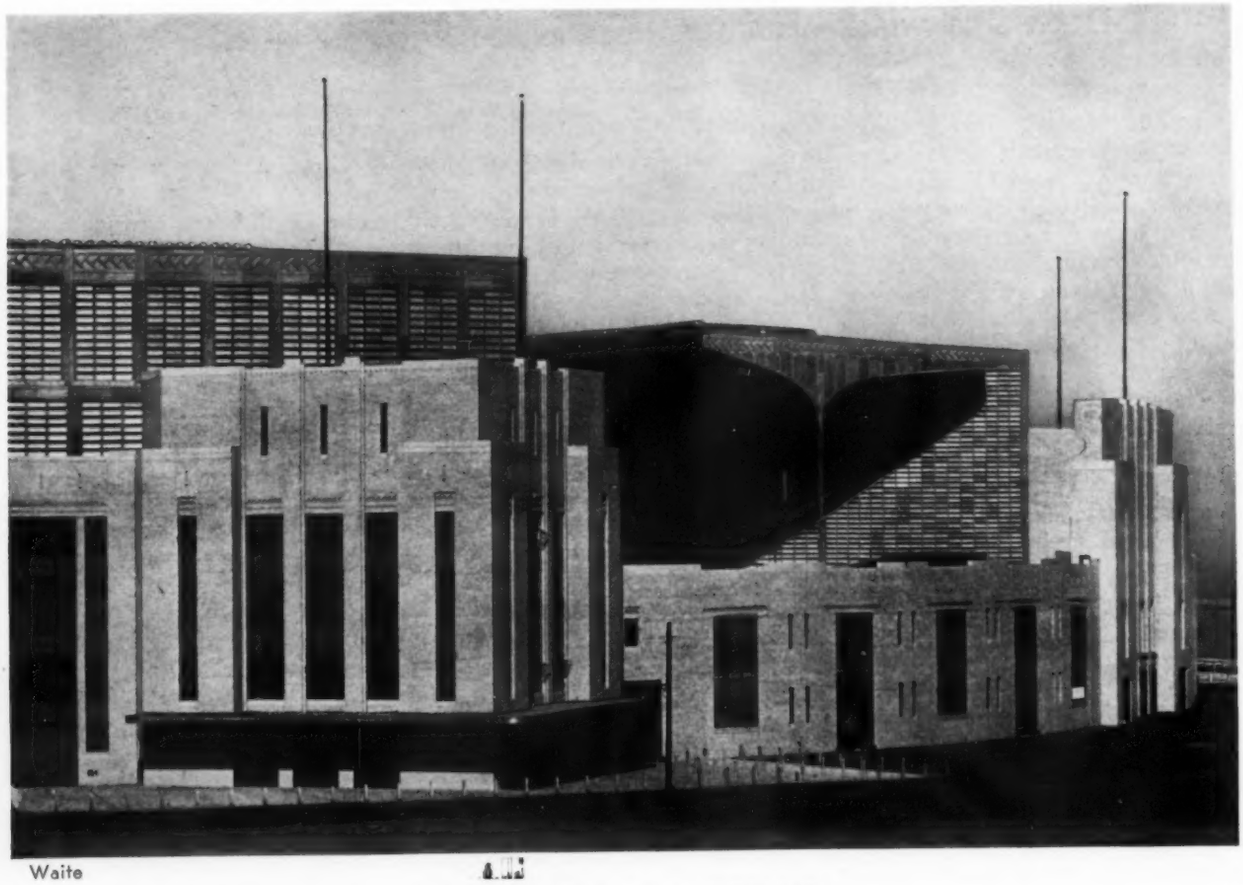
In general the stadium is of reinforced concrete and structural steel, faced with brick. It is two-deck throughout, with the exception only of the bleacher section. The roof is cantilevered forward to afford the front-row seats protection against weather.

The "egg-shaped" building is 800 feet over-all, extending east to west, and 720 feet wide, north to south. The field within is 527 feet long and 446 feet wide, with a perimeter of 2400 feet and a field of 183,000 square feet. The masonry wall is 61 feet above grade, the outside roof line 101 feet above grade and the inside roof line 116 feet above the field. There are 51 rows of seats in the main deck, 34 rows in the upper deck of which the first 3 rows are loose chair boxes; there are 52 rows in the bleachers. There are 48 turnstile entrances, 33 exits, 42 lower-deck portals, 38 upper-deck portals, 16 lower-deck ramps and 8 upper-deck ramps.

This new stadium is one of the few having permanent grandstand seats. The total permanent seating capacity of grandstand and bleacher sections is 78,189. There are 37,396 seats in the main deck of the grandstand, 29,380 in the upper deck, and 10,913 in the bleachers. Seating capacity can be expanded to accommodate 90,000 for football games, and 110,000 for prize fights.

One of the architectural features of the stadium is the use of sheet aluminum for the upper exterior walls which inclose the entire structure. This ventilated superstructure is made up of louvers with mullions dividing them into panels and surmounted by a rather flat sheet metal cornice. At each column, about 15 feet apart, broad pilasters extend from bottom of louvers to top of cornice; these pilasters project beyond the face and above the cornice.

A fair idea of the magnitude of the superstructure can be had from the fact that more than 130,000 pounds of aluminum were used in its construction, this material being approximately one-third the weight of steel in the equivalent gauges. In this superstructure, 8,000 aluminum wood screws, 25,000 aluminum nails, 60,000 specially designed aluminum bolts, 150,000 aluminum rivets, and 100,000 pounds of light steel for reinforcing the aluminum sheets, were also used.



Waite

MUNICIPAL STADIUM IN CLEVELAND
WALKER AND WEEKS, ARCHITECTS
OSBORN COMPANY, ENGINEERS

FINDINGS AND SUGGESTIONS OF THE HOUSING CONFERENCE

By MICHAEL A. MIKKELSEN

Among the noteworthy features of the President's Conference on Home Building and Home Ownership, held in Washington December 2 to 5, were (1) the quantity and diversity of information presented, (2) the number of topics pointed out as demanding further research before a scientific housing program can be formulated, and (3) the number of legislative adjustments and cooperative activities recommended.

The problem of home ownership is essentially an economic problem. It arises from the relationship between the family income and the cost of owning a home. In general terms it may be illustrated somewhat as follows.

The Committee on Objectives and Standards reports that, under existing credit facilities and customary business practice in the building industry, the cost of a home should not, as a rule, exceed twice the assured annual income of the family, and that the cash payment should equal 25 per cent of the purchase price. The purchase price is to include all special assessments for street improvements—grading, paving, sewers, and so on.

There are probably few urban places where a house, properly planned and containing sanitary conveniences, can be built on a lot with a full complement of paid-for street improvements, and sold at a profit for less than, say, $4,500.

To buy a home at this price the family would have to have an assured annual income of $2,250 and be able to make a down payment of $1,125. An annual income of that amount places the family among the high-income groups. The Committee on Types of Dwellings recognizes this in considering how far down the economic scale it is possible to reach with new dwellings. It suggests that "the group with annual incomes of from $1,800 to $2,200 be taken as the objective."

That group is not reached at the present time. The Committee on Large-Scale Operations states that "practically no new dwellings, and certainly no desirable types of houses, have been constructed in recent years at costs within the means of two-thirds of our population." This statement agrees with an estimate by Dr. Edith Elmer Wood (p. 52, *Recent Trends in American Housing*, Macmillan, 1931) to the effect that two-thirds of American families have incomes of not more than $2,000.

Basing her estimate upon a study of various authentic sources, Dr. Wood says:

> "It is the writer's belief that the following will be found not far from true: "One third of American families have incomes not to exceed $1,200.
> "One third of American families have incomes between $1,200 and $2,000.
> "One third of American families have incomes in excess of $2,000."

The question is sometimes asked, Will not a general increase in wages and salaries, say in the next era of prosperity, help to solve the home ownership problem? A general rise in wages and salaries, productivity remaining unchanged, would increase the cost of production and the cost of living, and would bring about no real change in the relationship between the family income and the cost of owning a home. The only practical avenue of approach toward a solution of the problem under the American economic system is through reducing the cost of homes.

One of the most extravagant cost items is that of junior mortgage financing. Besides, if a family has to save until it has 25 per cent of the purchase price in hand, the purchase may be delayed beyond the time when the children would be most benefited by living in a private dwelling. The conviction was therefore expressed that it should be made as easy for a family to buy a home as to buy an automobile, paying down 15 per cent of the purchase price.

Is it possible to devise a safe, economical and adequate credit system for the purchase of low-cost homes on this basis? Apparently no study was given to the question, possibly to avoid hampering President Hoover's personal initiative in the home ownership credit field.

Educational Influence of the Conference

Despite the fact that the Conference failed to suggest a radically improved credit system, and despite the further fact that it deferred the formulation of a complete housing program, it nevertheless marks the beginning of a new chapter in housing progress. For the first time in America, it brought together all existing first-hand data on each of the many phases of the problem of home building and home ownership.

It is bound to exercise an influence upon the speculative builder of low-cost dwellings, who in his effort to keep down costs has been debarred from seeking the advice of architects, engineers, and other specialists. His mistakes have been more often mistakes of ignorance than of dishonest intent and he himself has frequently sustained the loss which they entailed. In the committee reports

he will find practical instruction on design, plan, equipment utilities, construction, decoration, landscape treatment, land subdivision and the like.

However, the most important educational achievement of the Conference is its convincing demonstration that housing progress is conditioned by planned communities and cooperative activities —that the economic laws which govern the welfare of the community also govern the welfare of the combined real estate and building industry. The means outlined for bringing order out of confusion in the small house situation apply to all types of building.

Although the twenty-five fact-finding committees and the six correlating committees had a total membership of about 400 specialists, each committee found that "a good part of its recommendations had to grow out of the practical wisdom and professional experience of its members," because studies fundamental to strictly scientific conclusions did not exist. "Most of the information essential to effective action is still not available."

National Housing Institute Proposed

The aim of the Conference was to promote the building and ownership of low-cost private dwellings. But this aim, it was found, can not today be achieved except in a planned community, where localities are zoned and developed for specific uses—private dwellings, apartment houses, commercial buildings and so on. The Conference therefore recommended a research agency to ascertain "what under existing conditions are the factors that prevent good housing from becoming available for every one."

Excellent research work, it was stated, is being done in parts of the housing field by the U. S. Bureau of Standards, the Division of Building and Housing of that Bureau, the U. S. Public Health Service, the Bureau of Home Economics in the Department of Agriculture, and the Bureau of Labor Statistics in the Department of Labor. Many contributions to the literature of housing have come also from the Bureau of the Census, the Children's Bureau, and various other branches of the Federal Government.

Nevertheless, in the opinion of the Committee on Research, a permanent research foundation for housing should not be a branch of the Federal Government, but should be privately endowed.

Accepting the principle of independence in research, the logical next step was to entrust the research agency with educational functions. A National Housing Institute, privately endowed, was therefore suggested, to consist of the following divisions, in addition to its administrative department:

1. A Research Division.
2. A Service and Information Division.
3. A Demonstration (or local organization and programs) Division.

Whether a privately endowed foundation of the sort advocated is actually in prospect, *The Record* has no knowledge. However, as Secretary Wilbur's message from the President to the Conference declared that its work is to be continued, it seems to be a reasonable assumption that the private philanthropy which made the Conference possible will also be available for the proposed National Housing Institute.

Home Information Centers

One of the functions of the Institute would be to promote the organization of local housing programs and the establishment of Home Information Centers in every community. The purpose of each Home Information Center would be to provide all the information necessary to enable any inquirer to decide for himself:

(a) whether or not to locate in the community, and
(b) in what part of the community to make his home.

The information to be furnished concerning the community would include composition and trends of the population, location of schools, recreational facilities, stores, utility services, traffic flow and traffic facilities, adequacy of transportation service, banking, building and loan and other craft facilities, labor and material costs, zoning regulations, police and fire protection, assessment methods, per capita cost of local government, charitable organizations, health regulations, churches, servants' wages, industrial plants, sanitation provisions, conditions of real estate market, extent of vacancies, rent charges, number and types of new housing construction.

Decentralization

The basic evil in bad housing is land overcrowding. Hence, one of the first reports one naturally turns to is that of the Committee on Industrial Decentralization and Housing. This enumerates the major developments in power generation and transmission and in transportation since 1910 that have made it economically advantageous for many industries to locate in small communities, and adds that to some extent decentralization of industry is under way. However, as yet concentration is apparently larger in volume than is decentralization, as the following table from the report indicates.

Percentage Increase in Wage Earners in Manufacturing in Communities of Different Sizes

	1919-29	1909-10
United States	—2.1	36.1
Under 25,000	—6.0	21.1
25,000 — 50,000	4.1	53.4
50,000 — 100,000	—7.4	37.1
100,000 — 250,000	—13.4	68.9
250,000 — 500,000	—33.3	31.8
500,000 — 1,000,000	—21.4	127.1
1,000,000 and over	14.2	20.4

During a decade in which there was a decline of 2.1 per cent in total number of industrial wage earners, the cities of over 250,000 had an increase of 6.9 per cent while those of less than 250,000 had a decrease of 6.2 per cent. "Clearly the wage

earners employed in manufacturing are not being decentralized."

Note is also made of the fact that "with a few outstanding exceptions (Detroit and Los Angeles, for example), the wage earners in manufacturing living in the larger cities are a smaller proportion of the gainfully employed living in these cities than ever before. Trade, the professions and clerical work are absorbing most of the people who are crowding to the cities. This clearly indicates that the decentralization of population involves more than decentralizing manufacturing."

Percentage of the Total Population Living in Cities of Specified Sizes

Cities of:	1930	1920	1910
1,000,000 and over	12.3	9.6	9.2
500,000 and over	17.0	15.5	12.5
250,000 and over	23.5	19.8	16.8
100,000 and over	29.6	26.0	22.1
Less than 100,000	26.6	25.4	23.7

The report concludes that there are two distinct kinds of decentralization, one toward the suburbs of urban centers, the other toward the smaller towns. "A major obstacle to the former has been the general absence of comprehensive regional planning, and the chief obstacle to the latter has been the established transportation system and the railroad rate structure."

We know little of the action of the complex group of forces which has produced the present distribution of industry. So long as this is the case we cannot hope for any considerable control over them. The Committee therefore feels that one of its most important recommendations must be for further research in this field.

Planned Neighborhoods

The relationship of the family to the city is less intimate than is its relationship to the neighborhood in which it lives. Family life is adjusted primarily to the recreational, cultural and political activities of the neighborhood. Hence, all the committees which dealt with housing progress in its broader aspects came to the conclusion that planned neighborhoods are essential to good housing—planned neighborhoods within the framework of the city plan and the regional plan.

Thus the Committee on Design made it clear that design "includes or touches upon all the factors that create a dwelling—economic, social and financial as well as physical. . . . Design extends beyond the walls of the individual dwelling into the lot, and it covers the relation of the house to the lot; it deals with the relation of the house to adjacent houses, to the street, to the block and to the neighborhood. . . . The true unit of design is the group, not the dwelling."

The Committee on Design also gives an interesting answer to the statement frequently made that the traditional organization of the neighborhood is weakening under the conditions of modern life. The answer is "that the most natural, the most stable and the strongest position for the individual in this complex world is to become a member of a strong, successful residence group. . . . This organization gives to the individual a sense of security that is a liberating influence. . . . Home ownership or anything akin to it is possible only on such a basis. The very idea of home ownership means permanence, stability, security. The best security for home ownership is a high-standard dwelling located in a desirable neighborhood, protected against deteriorating influences."

The Committee on City Planning and Zoning concludes that a neighborhood unit "should have for its focal point the elementary school with its playground. There, too, a library, clubs, churches and some other community buildings might be concentrated. It would be the center of all local recreational and social activities. These places that serve as centers of the activities of children, being at the center of the area and well removed from the major traffic streets which form the boundaries of the unit, would provide a comparative freedom from the danger and disturbances common to such areas. . . . Neighborhood stores and commercial amusements would be found where they most naturally belong, at major traffic street intersections. Here also would be found facilities for mass transportation. On them also, when they are properly treated as by giving them parking characteristics and when the lots are sufficiently large, are possible sites for group or apartment houses."

The Committee points out that in practice, city planning has been predicated upon endless growth of the city with expansion at the edges and a constant deterioration near the center. Neighborhood planning is quite as necessary for rehabilitating blighted districts as it is for controlling the growth of the suburbs.

The cost of the lot on a fully improved street accounts normally for some 20% of the purchase price of an inexpensive private dwelling. Any appreciable reduction in the cost of improved lots would therefore help toward promoting home ownership. For this reason, a series of studies by the Committee on Subdivision Layout showing the relative improvement costs of lots in subdivisions differing only with respect to the street pattern, is valuable.

The area taken for the neighborhood units is 200 acres. The buildable area in each study represents 60.37% of the total area. While the traffic area in the standard gridiron plan is 26.70% of the total, it is only 17.30% in the "model neighborhood unit" plan; the recreation area is 12.93% in the gridiron plan and 22.33% in the "model neighborhood unit" plan. The cost of the lot and its improvements in the "model neighborhood unit" is $690.39 as against $1,314.40 in the gridiron plan. These figures should not, of course, be accepted for any purpose except that of illustrating the possibility of affecting lot costs through the street layout. "This study," according to the Committee, "seems to give further evidence in support of the fact, now in any case becoming generally accepted, that the cost of improving land can be consider-

ably reduced by thoughtful planning and functional layout."

The buildable area of the neighborhood unit of 200 acres provides dwellings for 2,050 families, housed as shown in the following table:

Distribution of Population as to Type of Dwelling

Dwellings in:	Per cent	Number provided	Sq. ft. land per dwelling	Area in sq. ft.
Single-family houses...	40.2	825	3875	3,186,900
Two-family houses.....	11.2	230	1940	446,200
Multifamily houses.....	42.5	870	1400	1,218,000
Apartment houses.....	6.1	125	1100	137,500
	100.0	2050		4,988,600

By multifamily houses the Committee means three-family houses.

It is interesting to note that housing improvement is coming more and more to be sought through neighborhood planning, zoning, public control of acreage subdivision, and restrictive covenants in deeds than through building codes.

Large-Scale Operations

The main hope of substantially reducing the cost of owning or renting homes seems to lie in large-scale operations which control the development of the raw land and the construction of buildings for an entire neighborhood unit. This procedure is now employed with commercial success for well-to-do people. It has also been used in notable instances for wage earners and clerical workers by private philanthropy.

According to the Committee on Large-Scale Operations, the following may be said for mass production of this kind:

"1. It is economical. The land is treated in large blocks, and is developed in one continuous operation to its final use for completed housing, thus avoiding a multitude of commissions, carrying charges, and in the case of outlying projects, the usual premature investment in public plant and utilities.

"2. It is modern. The community plan can be adapted specifically to the purposes it will serve, providing for gardens, a playground, and a recreational center, and in larger schemes for shops, schools, and other community buildings.

"3. It is efficiently designed. Under large-scale operation methods, a group of houses or a large block of apartments is designed as a single unit, thus utilizing to the maximum all space inside and outside the walls of the house, and making possible beauty of design, through the relation of the masses. This has been amply demonstrated in such communities as Mariemont, Ohio, and Sunnyside Gardens, Long Island. Small-scale operations are wasteful, because they must work within the frame of the single lot, almost always deep, narrow, and therefore highly inefficient.

"4. It is a good investment. Large-scale operation will offer a safeguard to investments. It dispenses with a multitude of small financial operations, reduces the volume of detailed work and permits careful scrutiny and appraisal. By creating neighborhoods of a homogeneous character, it guards against the possibilities of deterioration through spotty or inadequate development and it preserves values for a longer time than does our present method.

"5. It offers low rents. Loans on a greater percentage of value, with longer periods of amortization and a smaller interest rate are possible in large-scale operations. This and other factors mentioned above should mean a large saving in the monthly payments of those who rent or purchase such houses."

The Committee specifies certain changes in legislative and other regulatory restrictions that would have to be made in order to promote large-scale operations. The changes have to do with corporate ownership, corporation taxes, zoning and building codes. But a more difficult problem is to provide capital at low interest rates for equity financing. The Committee argues that government aid is needed to this end. "More necessary than all other requirements for the application of large-scale operation is a plentiful supply of money at low-interest rates."

The Committee estimates that by lowering costs of construction "to reach a new field of even 10% of our population (the farm population being excepted), expenditure of 5½ billion dollars will be required. This group represents those whose incomes are next below the one-third of the population who receive the highest income."

The new buildings erected would not enter into competition with private enterprise in the building industry. At the present time, the typical moderate-priced house in the suburbs of northern and eastern cities is built to sell at not less than $6,000.

The Committee appeals for public aid in financing noncompetitive low-cost construction in the following language:

"It is common knowledge that at the coming session of Congress the question of large federal expenditures for public work to relieve unemployment will be considered.

"Our committee does not desire to express an opinion as to the wisdom or expediency of the Federal Government using these means to relieve unemployment. It is of the opinion, however, that if a program of expenditures by the Federal Government for these purposes be determined upon, it would be a sounder use of public funds to invest them in housing, which is likely to provide its own carrying charges and eventually return the money to the public treasury, than in an extravagant program for roads, post offices and other public works which will require additional expenditures for upkeep and add maintenance charges to already overburdened taxpayers. Should the Federal Government enter the housing field, it might supply one-half of the equity financing. Such an amount would be matched by private investment and, assuming a 50 per cent mortgage from an insurance company, the funds so advanced would make available for employment from private capital three

times as much money as would go into an ordinary governmental program."

The Nucleus of a Program for the Building Industry

The basic means suggested by the Conference for promoting home building and home ownership are, for the most part, already in existence. Some of them exist only in a few places while the others need to be improved.

They are periodic local real-estate surveys, community, city and regional planning, local information centers, zoning and control of subdivision layout. These measures, together with an improved mortgage loan credit system, constitute the basic elements of an economic program for the building industry.

Is it possible for the building industry to create a program? Two promising agencies for collaborative study exist—the Construction League and the National Conference on Construction.

If slum clearance could be undertaken, it would go a long way toward reviving the building industry. This topic has not been discussed in the present brief review of the Conference. It deserves full treatment by a recognized authority and will be dealt with in an article by Arthur C. Holden in the February issue of THE RECORD.

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TYPICAL TRENDS IN LOW-COST HOUSING

AND THE OPPORTUNITIES EXISTING FOR ARCHITECTS

The studies of the Committee on Design of the recent Housing Conference required an inspection of some half dozen representative cities between the Allegheny and Rocky mountains. This inspection revealed certain significant trends in the field of new dwelling construction. The drift of things as shown in the accompanying portfolio of photographs is that of midsummer 1931. It reveals an acceleration of a recognized preponderance of house building by speculative or building agencies, or repetitive types of houses, in neighborhood groups, even invading the higher-price districts. Mass production in effect, with all of its deficiencies and few, if any, of its advantages.

Housing is a field where men who have learned to understand the small house can extend their service and improve the quality of American suburbs, without danger of interference with existing architectural practice and with the full backing and approval of the profession at large.

●

Most of the attainments of community design during the war were wasted through isolation or lack of appreciation. The Bridgeport war housing project, however, has been preserved and has stood out for ten years as a striking example of community grouping and good taste in economical house construction. Unfortunately, its example has been ignored.

Quality Photo Service

BRIDGEPORT, CONNECTICUT

MINNEAPOLIS

KANSAS CITY, MISSOURI

THE BUNGALOW TYPE has predominated in cities of the Central States but builders have become ashamed of its awkward bulkiness. Here is a recent design trend in Minneapolis, St. Louis, and Kansas City, where the cross front roof gable appeared almost simultaneously. The street effect hides the bulkiness of the broad roofed area in back.

ST. LOUIS

MINNEAPOLIS

THE STONE DOOR PERIOD is just passing, with the advertised front chimney following in its wake. No self-respecting 1931 bungalow appeared without the latter feature. Even the higher-priced field has been invaded by the front chimney and superimposed gables.

AN ARCHITECT'S DESIGN provides the inspiration for a whole block of builder's "designs." The builder has taken seriously the demand for more architectural expression.

These pictures are much more than examples of the builders' lack of skill; they reveal strong competition tending toward a uniform plan, quality and price in a given city, with slight relation to varying needs or purchasing capacities; rapid interchange from one city to another of innovations, particularly in faddish exterior features; and, finally, the fatal tendency of the untrained builder to make up in lavishness what he lacks in good taste.

And yet these builders are generally doing an honest job within their limitations; furthermore, no small number of them are just falling short of producing generally commendable results. It is through this latter group that the architect might provide the lacking touch which keeps such construction beyond the pale of really tolerable design. How can he go about it?

The approach will be not by telling the builder about his business, or trying to have him swap his designs for others, but rather by suggesting the things by which his well-tried and almost good efforts may be adjusted into satisfactory shape.

KANSAS CITY, MISSOURI

THE EQUALIZING EFFECT OF BUILDER COMPETITION is shown here. These expensive new bungalows adjoin a neighborhood in which the second view is characteristic of the product of past years.

THIS 1931 BUNGALOW is even more remarkable on the inside. Mission fireplace, ornamental "coved" ceilings, a bathroom with sunken tub and archways for each fixture, a rathskeller and conditioned air are only a few of its "feature" appeals. The side view shows the expansion of the rear roof for the sleeping porch. The other views show the franker treatment of the superimposed sleeping porch characteristic of the suburbs of Kansas City.

ST. LOUIS — HOUSE "A"

HOUSES "B" AND "C"

GOOD INTENTIONS THWARTED. The subdivider did a first-class job of expensive curving streets and generous lots. To assure the character of the buildings he built "A" and "C" as model houses, only to have "B" located between them and "D", "E" and "F" built down the street.

HOUSES "D", "E" AND "F"

ANOTHER ST. LOUIS BUILDER fared better in his experiment. Across the street from a row of indifferent bungalows he built a number of houses in good taste. His products met with approval and the other builder was forced to reduce prices.

BUFFALO — HOUSES "A" AND "B"

THE COMPLETE EVOLUTION, within a short period, of the usual narrow lot bungalow to the two-family flat, all in the same immediate district. House "B" is a one-family bungalow; ("A") the rear of this house is elevated to provide rooms for rental (this is an "income" bungalow).

GROUP "C"

Group "C" shows the back of a row of the "A" type.

GROUP "D"

Group "D" is an entire row of 50 full fledged two-family dwellings masquerading as bungalows.

GROUP "E"

Group "E" shows the same type in a little more expensive form. The brick portion is a rudiment of the brick sun porch: it is no longer a porch, for the extra stairs for the second floor have crowded the living room half out into the former sun room area and the second floor balcony thus straddles the living room below. The two little side windows—one in frame, the other in brick—are the windows over a fake brick fireplace in the living room.

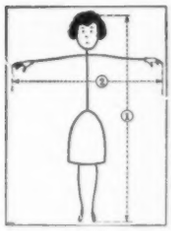
DIMENSIONS PART ONE KITCHENS

By A. LAWRENCE KOCHER AND ALBERT FREY

Galloway

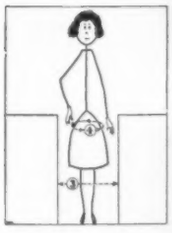
The dimensions and working heights of practical equipment are determined by human scale.

This series of articles presents data that will enable the architect and draftsman to find readily the average and available dimensions of equipment such as plumbing fixtures for kitchens, bathrooms, schools and other buildings. Chairs, tables, theater seating, office desks, typewriter tables and elevator sizes will be included. It will be a listing of the typical (not necessarily complete) equipment sizes as an aid in planning. A simplified and at the same time accurate indication of equipment illustrated has been adopted as suited to drafting room practice. Assistance has been received from the U. S. Bureau of Standards, the American Standards Association, Sweet's Architectural Catalogues, Brooklyn Borough Gas Company, and home economics investigators.

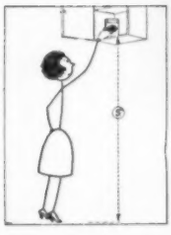


Height of top shelf.

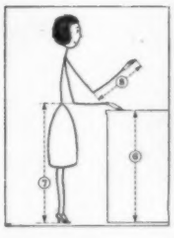
Reach (from finger tip to finger tip).

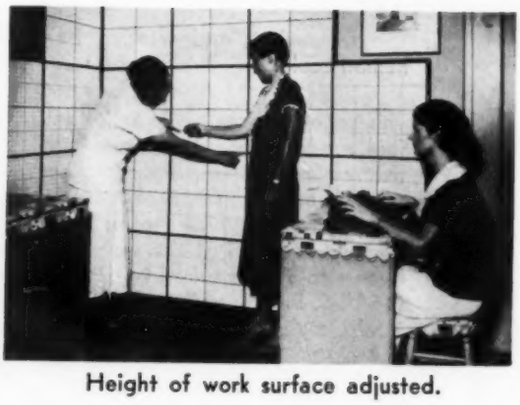


Space needed to move about freely.



Elbow to floor when seated.

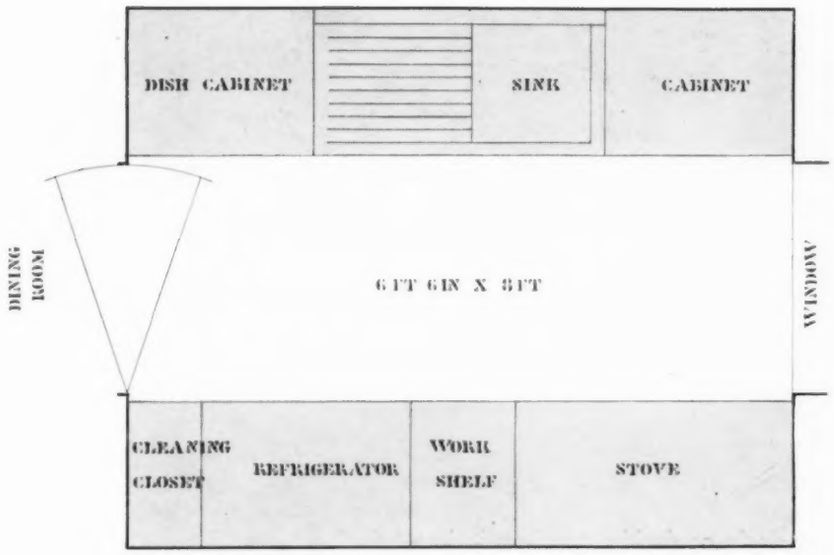




Courtesy, Miss Jane Callaghan,
Brooklyn Borough Gas Company

Height of work surface adjusted.

METHOD FOR PLOTTING heights of work surfaces and kitchen arrangement.

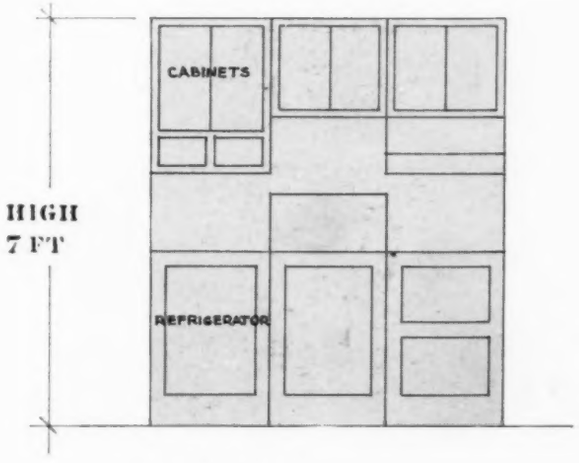


PLAN OF KITCHEN OF MINIMUM SIZE, suited to small family or apartment. "The size of the kitchen is determined by the equipment it must contain to carry out the activities of the family." From report of Committee on Kitchens and Other Work Centers, the President's Conference on Home Building and Home Ownership.

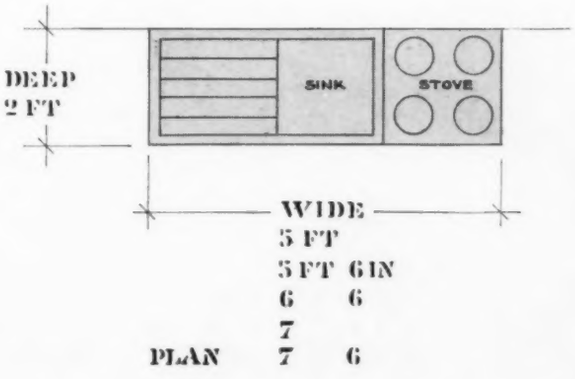
A MINIMAL KITCHEN

Kitchen				Pantry	
Design	Width	Length	Sq. ft.	Width	Length
Wall	4'8"	8'3"	38.5		
	4'8"	8'	37.3		
	4'6"	9'	40.5		
	4'8"	9'3"	43.5		
	5'	9'6"	47.5		
Small Apartment	6'9"	7'	46.6		
	7'	8'6"	59.5		
	5'6"	7'	38.5		
Apartment or Small Single House	6'6"	8'6"	55.25		
	6'6"	8'	52.		
	6'8"	8'	53.3		
Larger One-Family House—no maid	6'6"	10'6"	68.25		
	7'	12'	84.		
Rural	9'	11'6"	103.5		
(With breakfast nook)	7'6"	18'	117.		
(With breakfast nook)	9'3"	20'	192.5		
Rural With work room. Dimensions do not include workroom	7'6"	12'	90.		
	8'6"	13'	110.5		
	9'	11'	99.		
	8'6"	11'	93.5		
Rural	7'	12'3"	85.75	6'	7'6"
Apartment (with maid)	7'	9'	63.	7'	8'
	7'	8'	56.	6'	7'
	7'	8'	56.	6'6"	8'
Detached House (with maid)	7'	8'	56.	4'9"	8'
	7'	12'	84.	6'	9'

TYPICAL KITCHENS AND SPACE REQUIREMENTS as listed by the Committee on Kitchens and Other Work Centers of The President's Conference on Home Building and Home Ownership.

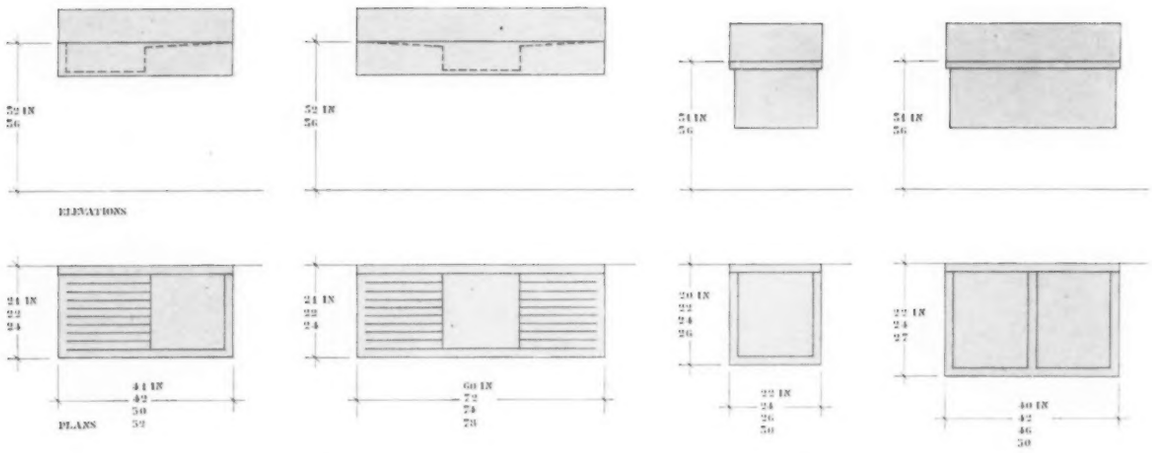


ELEVATION



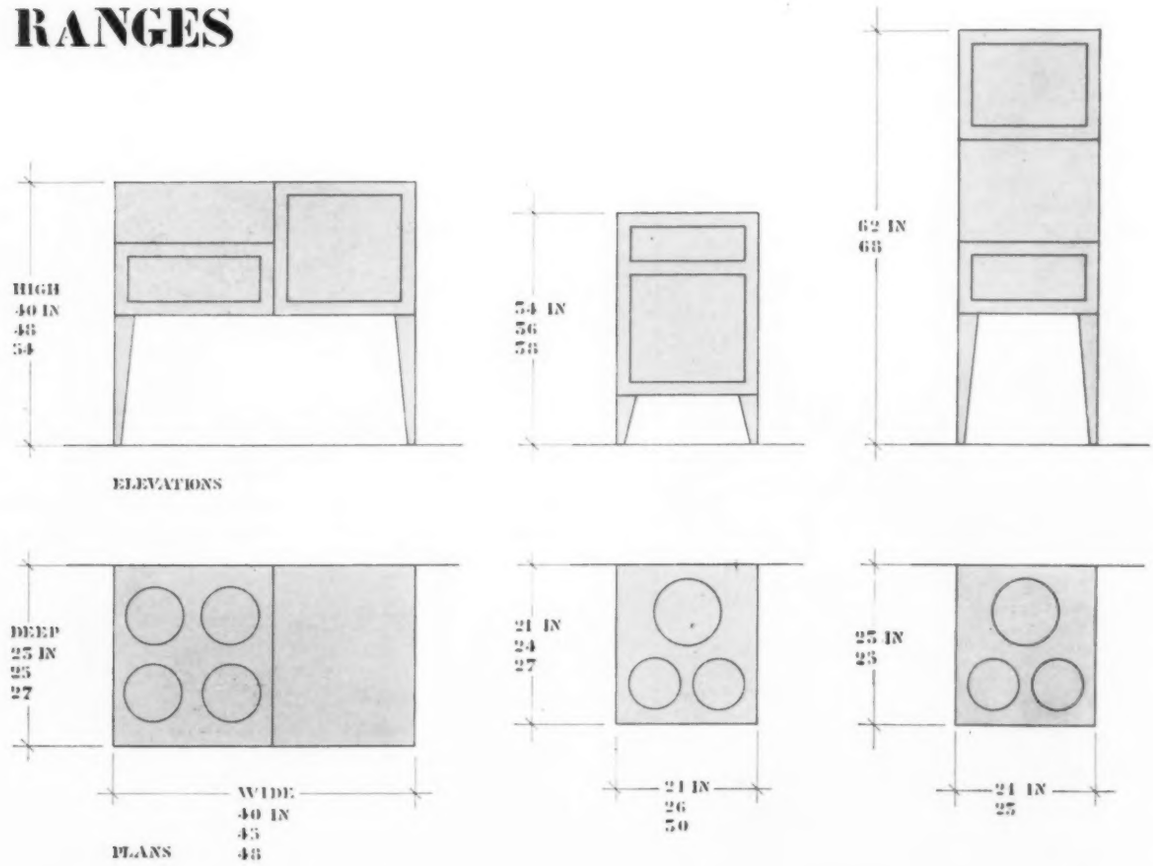
PLAN

KITCHEN UNIT



TYPICAL KITCHEN SINK has a single or double drainboard. The height for the sink rim varies from 32" to 36". Thirty-four inches is recommended as a safe height for most workers.*

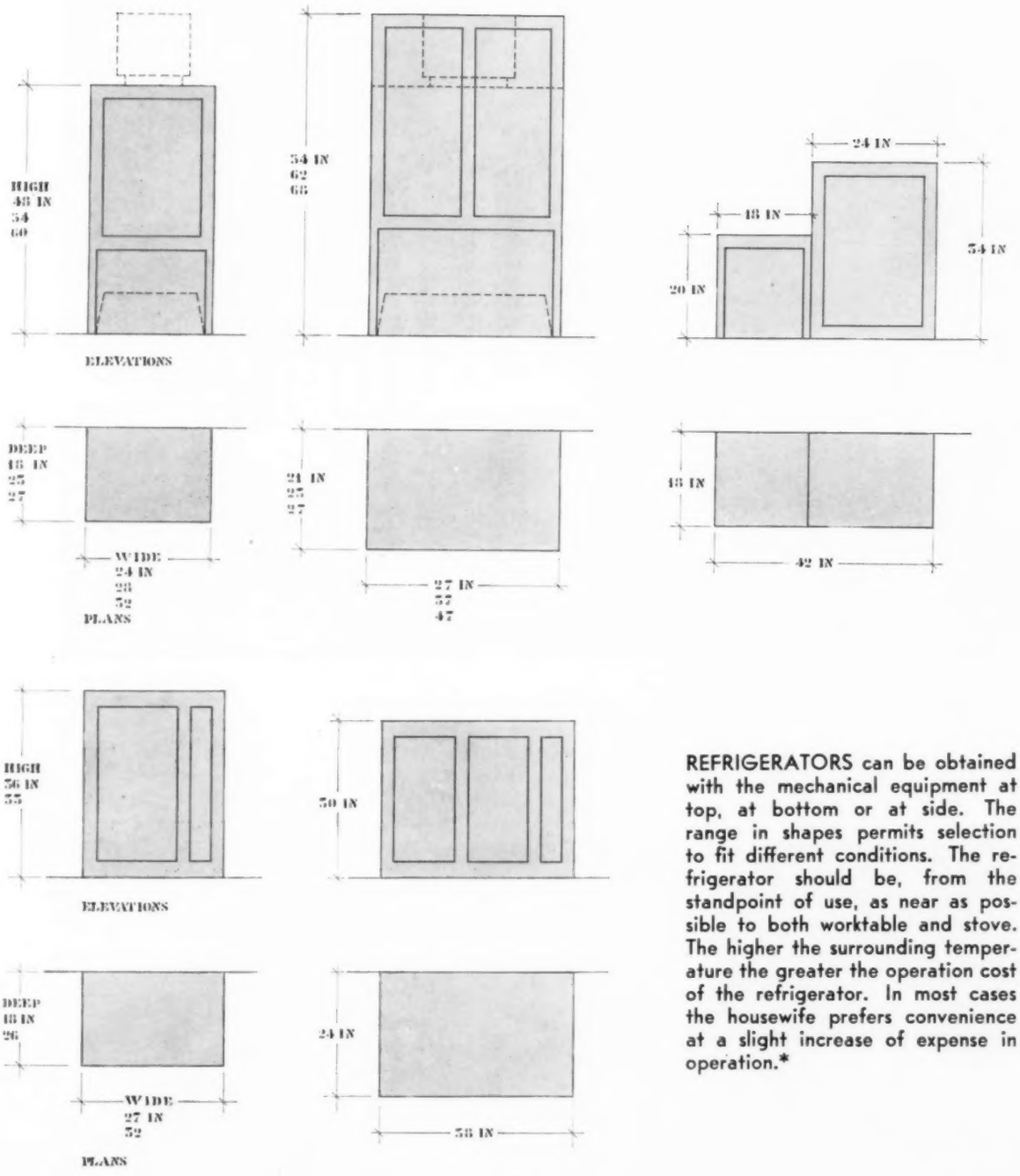
RANGES



KITCHEN RANGES are available in a variety of sizes and combinations. The location of the oven above, at side or below the cooking level makes compact or open planning possible. The range should be at right angles to the sink, or directly across if the kitchen is narrow.†

* "Planning the Kitchen." Cornell Bulletin, June 1926, p. 9.
† The President's Conference on Home Building and Home Ownership, Committee on Kitchens and Other Work Centers, p. 52

REFRIGERATORS



REFRIGERATORS can be obtained with the mechanical equipment at top, at bottom or at side. The range in shapes permits selection to fit different conditions. The refrigerator should be, from the standpoint of use, as near as possible to both worktable and stove. The higher the surrounding temperature the greater the operation cost of the refrigerator. In most cases the housewife prefers convenience at a slight increase of expense in operation.*

BOOK LIST

"Convenient Kitchens," Bureau of Home Economics, U. S. Department of Agriculture.

Kneeland, Hildegarde, "Abolishing the Inefficient Kitchen." Journal of Home Economics, July 1929, 21: 475-581.

Report of Committee on Kitchens and other Work Centers. The President's Conference on Home Building and Home Ownership, 1931.

Lüders, Dr. Marie, "Easy Management of the House," Journal of International Housing Association, July-August 1931.

Publications of American Standards Association.

Morin, Grace, "The Successful Kitchen." Cornell Bulletin.

Gilbreth, Dr. Lillian, "The Kitchen Practical." Brooklyn Borough Gas Co., 1930.

* "Space and Placement Requirements for the Kitchen and Its Equipment," Mary Mason.

Galloway

STATE OF NEW YORK OFFICE BUILDING, NEW YORK CITY
WILLIAM E. HAUGAARD, ARCHITECT

Galloway

INTERNAL REVENUE BUILDING, WASHINGTON, D. C.
JAMES A. WETMORE, SUPERVISING ARCHITECT

PUBLIC WORKS AND THE DEPRESSION

AN EDITORIAL BY WILLIAM STANLEY PARKER, ARCHITECT

The way out of a depression is evidently as difficult as any labyrinth could provide. So many statements of desirable public policy are made which by themselves seem quite clearly sound, yet when they are viewed as a whole each completely defeats one or more of the others and all are thereby shown to be unworkable. That leaves us with the depression in our lap, just where we started.

If we are optimists we will refuse to accept the conclusion that nothing can be done about it and start another analysis of the various statements in an effort to find the ones that contain some hidden fallacy not originally observed. Let us consider a few.

Individuals are wisely advised to put by for a rainy day. Savings bank deposits record the extent to which this advice is taken to heart. We are told, however, by wise politicians and others, that no community should follow the same course as an accumulated fund held in reserve would be too great a temptation to those desiring its benefits and it would be used up unwisely before the time came when it would really be needed. One who has watched legislation and the ways of legislators understands quite clearly what is meant, and is ready to accept the conclusion as sound.

Much is said about the use of public works in times of depression in general business. It is pointed out that for public work to compete for labor with private enterprise in boom times only tends to increase the inflation in prices. It is likewise shown that the public can get more public improvements for its money in periods of depression, while at the same time creating much needed employment. It is hard to see any serious flaw in these statements.

Taxes are intensively considered in current discussions. The rapid rise in taxes and the reasons therefor (some if not all of the reasons) are pointed out. The critical burden on real estate seems clearly proved in most localities. The taxpayer makes a good case out of his argument that the limit has been reached, that real estate is frequently over-assessed, that it is bad enough in boom times but now with all sorts of income factors reduced any increase in taxes is unthinkable. Who feels so inadequately taxed that he will rise to refute this statement?

Finally the dole is cast on the daily heap of discarded policies and the unanswerable argument is presented that the antidote for unemployment is jobs. Of course! Agreed!

Well, now where are we? In times of depression private business is slack—this factor being the cause or the effect, or both, of the depression—so jobs are not being created by private industry but rather are being curtailed. The only other jobs are those created by public works and we are agreed that under such conditions we should create jobs by increasing our public improvements of various kinds. Fine, let's do it! But—we must of course pay for the improvements. This can be done either with accumulated reserves or bond issues; but we have agreed that accumulated reserves are impracticable, and as for bond issues, they will inevitably increase taxes and we have agreed this must not be done. So there we are! Back where we started, and a little more depressed.

Where is the flaw in this vicious circle that brings us back so unerringly to our starting point? I do not believe it lies in the statement that we should increase public works to create jobs in times of depression. These, of course, must be understood to mean legitimate public improvements which are already needed or which will surely be needed in the immediate future. This policy necessarily involves some long-range planning so that the needs of the community may be defined for some stated period of years and various projects listed in the order of their probable need. It also involves self-restraint in times of plenty, postponing certain projects that are not urgent so that they can be thrown into the market when the creation of jobs is a paramount need.

We come then to the question of how to pay for them. Certainly increased taxes in times of depression are doubly hard to face. We are seeing every day now the proof of the argument that taxes must not be raised and that expenses must be cut to the bone in order to offset reduced tax receipts. The Government is following the lead of private industry and planning to discharge Government employees, thus increasing the unemployed, in order to balance the developing deficit. Similar attitudes are evident in State and Municipal governments as well as in federal activities. If there is a flaw in this policy it seems to be pretty generally overlooked.

Is the flaw, then, in the argument against public reserves to be accumulated in times of general prosperity and available, under carefully defined restrictions, for release in times of depression to pay for public improvements without thereby increasing taxes? Unless we can find a flaw some-

Galloway

DEPARTMENT OF AGRICULTURE BUILDING, WASHINGTON, D. C.
RANKIN AND KELLOGG, ARCHITECTS
JAMES A. WETMORE, SUPERVISING ARCHITECT

Galloway

NEW UNITED STATES CUSTOMS BUILDING, DENVER, COLORADO
JAMES A. WETMORE, SUPERVISING ARCHITECT

where we must accept the policy of waiting with folded hands until some hidden and secret activity develops of its own subtle accord and finally leads us into another period of prosperity. Not quite with folded hands however and not quite without increased taxes, because our welfare departments will be active, spending large sums in relief.

Millions for jobs but not one cent for relief! Perhaps that is a wise formula after all.

What then is the validity of the argument against accumulated reserves? It is based upon human frailty. It is due to lack of confidence in our own ability to manage our own affairs. It is a vote of censure on politicians by politicians. And yet an element of reserve for contingencies is in every tax levy. Why should we be afraid to tackle the problem of a continuing reserve for less immediate contingencies? Has any one ever attempted to draft an act that would provide such a reserve? What proportion of the tax levy should be set aside in such a fund so that in the seven to ten year interval between depressions enough would be accumulated to be of some value? What protective hedges should be built about the reserve so as to insure its proper use at the proper time?

I do not propose to attempt an answer to any of these questions in this brief space. For the moment I seek only to raise for consideration a question of policy which, it seems to me, has been too readily accepted in the past and which seems to contain the weakest spot in the chain of current policy that binds us to inactivity. There may be a weaker link in the chain elsewhere; if so, I hope some one will point it out.

ARCHITECTS SHOULD SUPPORT THIS BILL DEMANDING THEIR EMPLOYMENT FOR PUBLIC BUILDINGS

A bill has been introduced in the House of Representatives by Hon. Robert A. Green of Florida, asking that the designing of public buildings be entrusted to the nation's ablest architects, and that the activity of the Office of the Supervising Architect of the Treasury Department be limited to supervision. The bill, which is sponsored by the Committee on Public Works of the American Institute of Architects, has been referred to the Congressional Committee on Public Buildings and Grounds.

The Bill Now Before Congress:

"To direct the Secretary of the Treasury to contract for architectural and engineering services in the designing and planning of public buildings.

"Be it enacted by the Senate and House of Representatives in Congress assembled:

"That the Secretary of the Treasury is hereby authorized and directed to employ by contract, and at the established rates of compensation, outside professional or technical services of competent persons, firms or corporations, for the architectural and engineering designing and planning of such Federal buildings as are now or may, in the future, be placed under the jurisdiction of his Department, without reference to the Classification Act of 1923, as amended, or to Section 3709 of the Revised Statutes of the United States.

"Section 2. That such employment shall be based at all times on the highest grounds of proven professional ability in order that our Federal architecture may truly represent our national genius and keep pace with the rapid development of the arts of architecture and engineering. Architects or engineers shall not be employed without prior submission to the Secretary of the Treasury of satisfactory evidence of their qualifications and experience.

"Section 3. That wherever circumstances warrant, such services shall be contracted for by the employment of the ablest architects and engineers resident in the general sections of the country wherein such Federal buildings are to be erected.

"Section 4. At the discretion of the Secretary of the Treasury, the employment of outside architects or engineers may be omitted in connection with public buildings of a total cost for building and site of not more than Fifty-Thousand Dollars ($50,000).

"Section 5. That all such individuals, firms or corporations shall render their services subject to the approval and under the direction of the Supervising Architect of the Treasury, whose duty it shall be to act for the Government in all matters regarding sites, the allotment and subdivision of space, the control of technical detail, the letting of contracts, and the supervision of the erection of said Federal buildings.

"Section 6. Nothing in this act shall be construed to affect the duties of the Supervising Architect of the Treasury in regard to maintenance, alterations, repair, or supervision of either existing or proposed public buildings.

"Section 7. That the cost of compensation for outside professional or technical services shall be charged to the appropriation for the construction of the building for which such services are rendered.

"Section 8. All acts or parts of acts inconsistent with the terms of this act are hereby repealed.

Reasons for Supporting This Bill

Under this proposed legislation, according to a statement by Louis La Beaume of St. Louis, chairman of the Institute's Committee on Public Works, the Supervising Architect would become such in fact as well as in name. Savings in the Federal building budget and greater vitality of architectural design would also result.

"The purpose of this bill," Mr. La Beaume points out, "is to bring to the service of the Government the ablest professional ability in the nation. The country is entitled to these services, and the employment of skilled architects and engineers outside of the Federal Bureau will inevitably result in the creation of a more vital architecture appropriate to the regions in which Federal buildings are to be erected.

"It cannot be denied that to restrict the designing of our Federal buildings to a single department, no matter how efficient, must inevitably narrow and stereotype the expression of our architectural ideals. Moreover, we share the belief of a large body of public opinion that the rapid growth of governmental bureaucracy, which we have witnessed during the past few years, should be checked.

"We oppose the further encroachment of the Government into the field of private initiative. The Government of the United States is no more qualified to design our buildings than to paint our pictures or write our books.

"This bill would leave the Office of the Supervising Architect of the Treasury to function solely as a supervising bureau, guarding the interests of the Government in all the practical necessities of its building operations, and retaining its control in regard to the maintenance, alterations, repair, and supervision of all public buildings.

"In any emergency such as this, speed as well as efficiency must result from the prompt allocation of various projects to architects resident in the general sections in which public buildings are to be built.

"Moreover, the employment of architects outside the Treasury Department must bring to the service of the Government the abilities of men familiar not only with local conditions and customs, with climatic factors influencing design, and with regional methods of construction, but of men thoroughly conversant with the use of appropriate and economical materials.

"The validity of these arguments has been recognized by the Office of the Supervising Architect of the Treasury in the contracts already made with architects outside the Department. These employments have been made under a permissive clause in the Keyes-Elliott Appropriation Bills, under which the Federal Building Program of the Treasury Department is going forward.

"When these appropriations are exhausted, the discretionary power granted the Secretary of the Treasury, for the employment of outside architects, will lapse. It thus becomes important for the entire building industry, and the tax payers, to secure the passage of this legislation now."

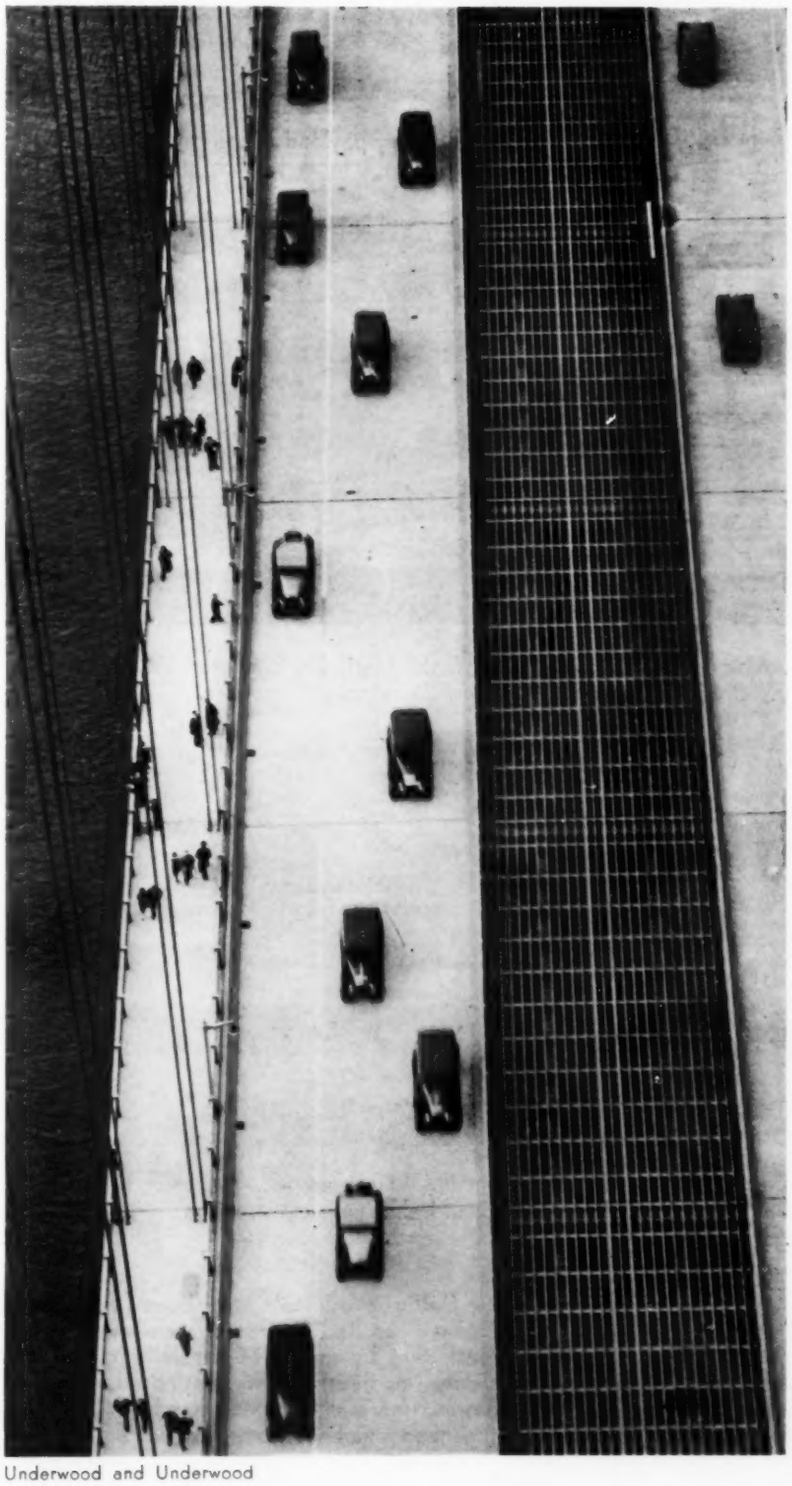
The Committee on Public Works

In addition to Mr. La Beaume, the Committee on Public Works are Charles Butler, New York; Charles D. Maginnis, Boston; Frederick L. Ackerman, New York; G. Frederic Ashley, San Francisco; James O. Betelle, Newark; N. Max Dunning, Chicago; R. K. Fuller, Denver; Frederick G. German, Duluth; Myron Hunt, Los Angeles; Ellis F. Lawrence, Portland, Ore.; Allison Owen, New Orleans; Harry I. Schenck, Dayton; Nat G. Walker, Fort Myers, Fla.

TECHNICAL NEWS AND RESEARCH

TECHNICAL DEVELOPMENTS 1931

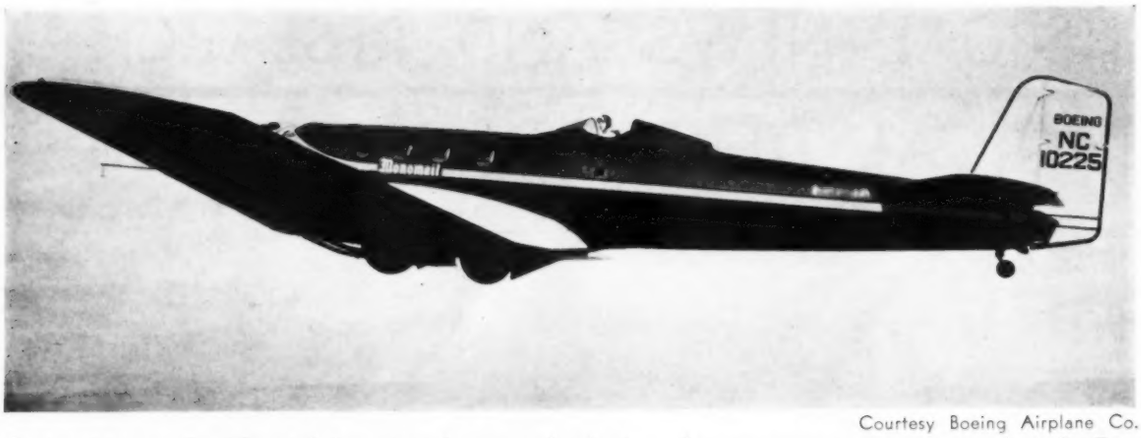
A SUMMARY by K. LÖNBERG-HOLM



GEORGE WASHINGTON BRIDGE
NEW YORK

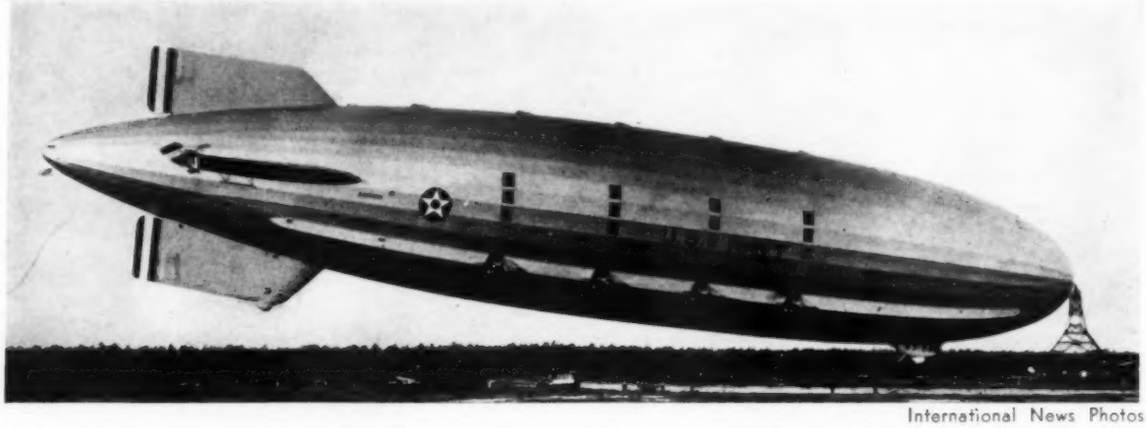
Main span 3500 feet. Suspended from four 36"-diameter cables.

Underwood and Underwood



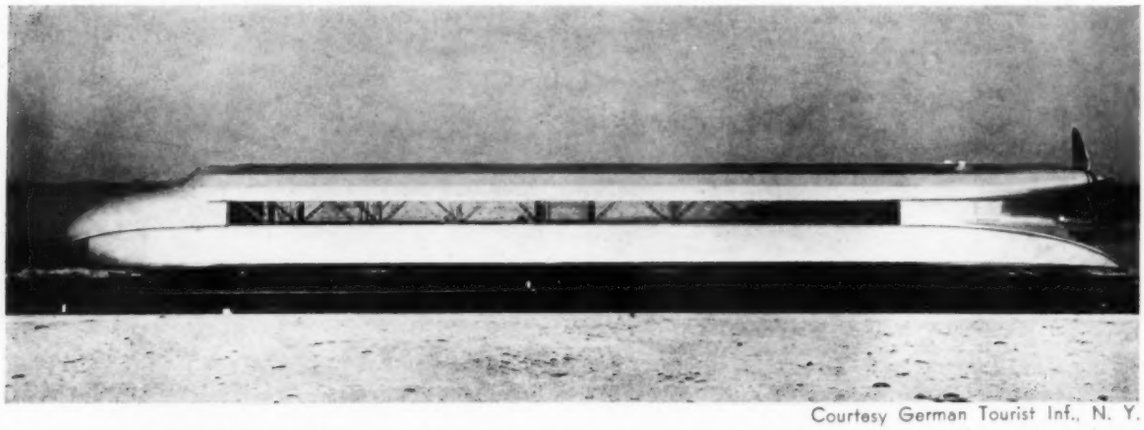
Courtesy Boeing Airplane Co.

Boeing Monomail. All-metal, low-wing, heavy-payload plane for six passengers, cargo and mail. Top speed 160 miles per hour fully loaded. Retractable landing gear.



International News Photos

U. S. S. Akron. Over-all length 785 feet. Maximum diameter 132.9 feet. Maximum speed 83.8 miles per hour. Cruising range 10580 miles. Duralumin framework.



Courtesy German Tourist Inf., N. Y.

German propeller-driven railway car for 40 passengers. Maximum speed 110 miles per hour. Length 90 feet. Weight 18 tons. Steel tubing and aluminum construction.

HORIZONTAL TRAFFIC

Speeds and payloads of high-speed traffic instruments have been increased by use of light metals and through refinements in design which have resulted in greater aerodynamic efficiency. Recent tests at the Westinghouse Laboratories have shown that by means of streamlining, the air resistance of a body can be reduced to 1/20 of its original value. This design trend is opposed to the past tendency of obtaining higher speeds through increased power. Increase in speed has been accomplished without sacrifice of payload and with saving in fuel, time and overhead expenses.

TECHNICAL DEVELOPMENTS IN 1931

By K. LONBERG-HOLM

This article is a summary of indicative trends and research work, new means of communication, new tools, new materials and construction methods of interest and value to architects. These developments have helped to reduce dead load and waste, reduce or eliminate human drudgery in routine work, save time, reduce distance, relieve congestion and increase control, comfort and safety.

Most significant perhaps are the developments in the field of electronics. Equipment utilizing control systems actuated by electronic tubes has increased in number. Applications of photocells—"electric eyes"—are used in industrial control, traffic control, light control, visual reproduction and in household operations. Gaseous lighting has progressed. Radio and visual and sound-reproducing apparatus have become standard building equipment.

City and community planning as well as building design are conditioned by these new technical factors.

GENERATION OF POWER *

Mercury-Vapor Turbines

A 20,000-kilowatt mercury-vapor turbine generator will be installed in a power plant now being built in Schenectady by the General Electric Company. It will be the first outdoor steam plant and will have coordinated industrial requirements for process and heating steam and utility sources of electric power. A second installation will be made at the same time in the Kearny plant of the Public Service Company of New Jersey.

The mercury-vapor process will enable the station to generate more than twice as much electric power per pound of process steam than is possible with the highest steam pressure. The greatest thermal efficiency now achieved in a condensing steam plant burning coal is 27 per cent. In the new station the power will be produced with an efficiency of 85 per cent. The apparatus will be placed outdoors with the turbine on a low level to reduce building costs, which for steam power plants amount to 25 to 33 per cent of the total investment, and to allow freedom for future additions. Operators and accessory equipment will be located in a low substructure. Outdoor stations are believed by the engineers to be the logical trend in power-plant development, as the greatest part of the capital is made available for working machinery. A 10,000-kilowatt mercury-vapor turbine has been in operation in Hartford, Conn., since February, 1930. The records of this installation show a substantial saving in fuel over usual steam generating equipment.

The efficiency of any heat engine may be increased by increasing the temperature range through which it works. Mercury boils at a much higher temperature than water, and the properties of mercury are such that high temperatures can be obtained without high pressure. The mercury is boiled and vaporized over a fire just as water is boiled and vaporized in a steam boiler. The mercury-vapor drives a mercury turbine. At the exhaust end of this turbine the mercury-vapor is still hot enough to boil water and make steam at pressures which are in common use. A large part of the power generated from the mercury turbine is therefore obtained at high efficiency since the heat in the exhaust is not lost but is used in steam production. The design for the new station is based on an output of 330,000 pounds of steam per hour from the mercury condenser.

Concentration of Power

The trend toward high-capacity steam-generating units of compact design with increased steam production per square foot of ground area occupied and per cubic foot of building has resulted in marked economy of building area, especially important in cities where high real estate values prevail. A recently developed Combustion Steam Generator contains all the elements required for fuel burning, steam generation and maximum heat recovery in a single unit, available in a range of standardized sizes providing capacities from 150,000 to 400,000 pounds of steam per hour. A number of these units have been installed in industrial plants.

District Heating

A marked trend toward the purchase of heat as well as electric power from central supply companies for buildings of all types and sizes is indicated by the building of the Kips Bay Station in New York City—one of the largest steam-generating units in the world—constructed by the New York Steam Corporation, in order to meet the increasing heat load of buildings in the Grand Central area. Similar extensions of steam-heating service are being carried out in other cities.

*Appreciation is expressed for information received from the editors of the following publications: COMBUSTION MAGAZINE, ELECTRICAL WORLD, and POWER.

NEW MATERIALS, PRODUCTS AND FINISHES *

Production of Steel Without Manganese

Manganese is not available in the United States in suitable quantity and form to supply the needs of the steel industry were the supply from abroad shut off. Work has been undertaken at the Watertown Arsenal to investigate manufacture of steel suitable for cannon without using any manganese. It was assumed that this would be the worst condition to be met. Zirconium was used to replace manganese as far as its functions of neutralizing oxygen and sulphur are concerned. The physical properties of this steel were found to compare favorably with those of similar alloy steels containing normal manganese.†

Duprene

A rubber-like compound produced from acetylene. Isoprene made from the acetylene gas is converted into Duprene. Reported to be more resistant than natural rubber to the chemical action of gasoline, kerosene, oils and other solvents harmful to natural rubber. Various applications where rubber has been used in the past. E. I. du Pont de Nemours and Company.

Keldur

A resilient, nonelastic plastic used for isolation of impact and vibrations of low frequencies. Applications: mattresses for heavy machinery, pads for blowers and motors. Manufactured in sheets one yard square. Standard thickness, ⅜ inch. Not adversely affected by oils, alcohols, gasoline and petroleum products. Attacked by concentrated mineral acids and alkalis. Deteriorates by immersion in water or steam. Must be protected from ercessive heat and loses its resiliency when chilled. Keldur Corporation, Newark, N. J.

Insulated and Reinforced Plyboards

Ferroclad insulation: insulating material of any standard make and thickness reinforced with outer protective layers of 20- to 24-gauge black, galvanized or furniture steel. Also nonferrous metals. Maximum-size sheet, 42 by 120 inches. Truscon Steel Company.

Met-L-Wood: poplar or balsam plywood faced with metal on one or both sides. Monel, aluminum, stainless or galvanized steel, 20-24 gauge. Fabric bond with casein glue. Lock seam along edges. Maximum-size sheet, 56 by 144 inches. Present applications: automobile bodies, airplane cabins, store fixtures. Met-L-Wood Corp., Chicago, Ill.

Armorply: similar construction. United States Plywood Company, New York City.

Cemesto-Board: Celotex insulating board in thickness from ½ to 2 inches with ⅛" outer layers of asbestos cement. Also made with one facing. Insulating properties of Celotex. Waterproof bonding material. The asbestos cement applied as a wet lap and cured under pressure. Standard size, 4 by 8 feet. Applications: roof decks, walls, partitions. The Celotex Company, Chicago, Ill.

Plymetals

Niclad: a thin layer of pure nickel rolled on steel plate. Applications in chemical industry.

Stainless steels are used in plymetals at great reduction in cost and often with improvement in physical and fabricating properties of the resultant product.

Self-Lubricating Materials

Powdered nickel, copper and tin are used for production of porous, self-lubricating bearings. These compressed products assume the characteristics of a sponge as regards their capacity to absorb and hold oil (from four to six per cent of their own weight) but carry loads which approximate in magnitude those possible with cast bearings.

Impregnation of wood with lead, tin or other metals and alloys yields a material which, like remetals and alloys yields a material which has new properties for various purposes. The greatly increased hardness of the wood, as well as its capacity for absorbing oil, makes it suitable for bearings and special applications where expensive and exotic woods have been used in the past.

Pyrex Glass Building Blocks

Hollow building blocks of *Pyrex* glass have been developed by the Corning Glass Works, Corning, N. Y. The blocks will be on the market in March, 1932. Tests show that these blocks have the high fire-resistance and the structural properties of *Pyrex* glass used for construction of baking dishes. The blocks have surface patterns designed for controlled distribution of light. (See GLASS. The Architectural Record, October, 1930.)

Rapid-Drying Finishes

Use of resinoids (synthetic resins) instead of natural resins in the lacquer and varnish industry has resulted in accelerated drying and more uniform and durable products. (Example: *Bakelite* varnish, lacquer and enamel.) These synthetic resins permit the use of cheaper solvents and smaller quantities of nitrocellulose, the costly element in lacquer. Some of these synthetic resins of the incompletely polymerized type can be developed to form film by themselves when applied in mixtures with solvents and pigments.

Colvulc

A rubber coating which can be applied in liquid or paste form to wood and metal without the necessity of vulcanizing. Applications: protective coating for mechanical equipment, ducts, tank-lining, pipes. Colvulc Rubber Company, Norfolk Downs, Mass.

*Appreciation is expressed for information received from the editors of CHEMICAL AND METALLURGICAL ENGINEERING and ASBESTOS.
†METAL PROGRESS, September, 1931.

WELDING *

Structural Steel Welding

The report of the Structural Steel Welding Committee of the American Bureau of Welding, epitomizing a five-year program of study and tests of various types of welded joints, has been made available in book form. The purpose of the investigation was the determination of: (1) safe design values under static loading for various types of fusion-welded joints as commercially welded in structural-steel fabrication shops, and (2) the degree of uniformity of the strength of welded joints that may be expected from such shops throughout the country.

The following conclusions are stated:

1. No harmful effect on the base metal due to welding was disclosed.
2. For designing welded joints in buildings subjected to quiescent loads, the unit stresses permitted in the American Welding Society's "Code for Fusion Welding and Gas Cutting in Building Construction" are endorsed, provided welders are qualified. These permissible unit stresses are, in pounds per square inch of weld throat, 11,300 shear, 13,000 tension and 15,000 compression.
3. The tests indicated that joints commercially welded by qualified welders may be expected to possess strengths within 12 per cent of general average results.

Welding in Building Construction

Data for estimating amount of welding in a steel building frame and time required to perform welding have been assembled. A survey of existing structures in the United States shows 46 bridges and 183 buildings in which welding has been used as a means of fabricating the steel frames. The Dallas Power and Light Company's 19-story office building is the tallest building thus far welded.

A series of tests for loads, fire protection and sound conduction are being conducted at the Bureau of Standards in Washington on welded-steel floor panels of the battledeck steel floor type. Complete records of these tests are not yet available, but indications are that this type of floor construction will be one of the most serviceable. Experience has shown that plates spanning two or more of the stringers can be used and that full strength of the combined plate and beams can be developed by individual welds through holes punched approximately one foot on centers. This procedure is reported to eliminate a large part of the shrinkage stresses caused by continuous seam welding.

Economies

Saving in steel: In connections on most types of construction; in tension members, because no allowance has to be made for rivet holes or weight of rivets; in truss work by the elimination of gusset plates as well as saving in tension members; in tension flanges of girders and other built-up sections. Statistics show that savings in steel on particular jobs amount to from 10 to 43 per cent when arc welding is used in place of riveting.

Saving in labor: Punching of holes eliminated except where required for erection purposes; one welder takes the place of a riveting gang; reduced handling—in certain cases structural members may be shipped directly from the mill for field welding, thus avoiding transportation and handling charges from mill to shop.

Saving in space: Absence of projecting rivet heads.

Examination of Welds

X-ray examinations of welds are widely used for studying welding technique and have been applied commercially to inspection of welds in boiler and tank construction. Such methods have not been utilized in fabricating building frames. It is generally conceded that examination by eye is sufficient to insure safe construction but that rigid inspection and supervision is required.

A 100-Per-Cent-Welded Structure

An all-steel-and-glass one-story (550′ x 150′) tank shop recently completed at Pittsfield, Mass., for the General Electric Company was entirely arc-welded. Eighteen-gauge sheet-steel roof decking weighing 7 lb. per sq. ft. gave a total roof load of 45 lb., including insulation and finish, and allowing 30 lb. live load. The sheets were welded together and in turn welded to structural purlins placed 8 feet on centers. A layer of 1″ Arborite insulation was laid over the roof.

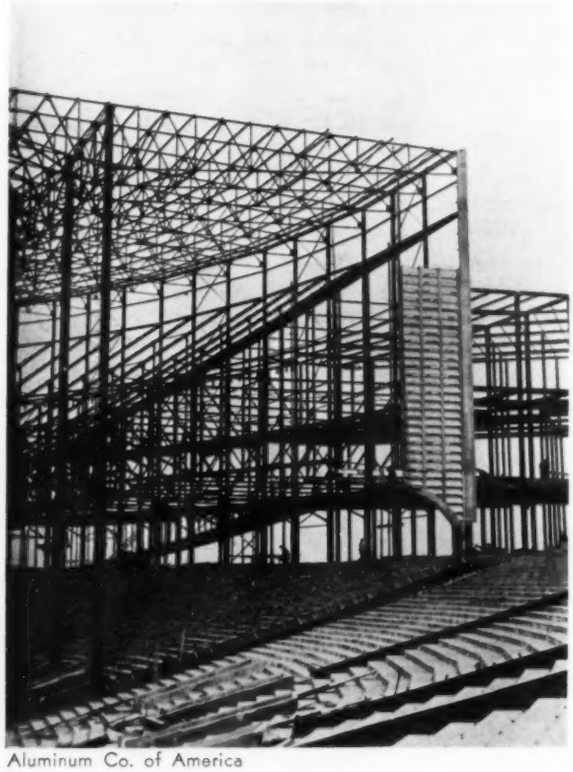
The welding involved approximately 1,500 tons of steel. Welding operations were completed within three days of steel erection. Seven welders were employed, each supplied with current from a separate motor-generator welding set. Sixty-five-foot columns and 74-foot trusses were shipped shop-fabricated in one piece. One-eighth-inch steel plate sections formed with slip joints and insulated with ½-inch fibrous insulation covered inside with 20-gauge sheet metal welded in place were used for pilasters between the window sash.

Welded Boilers and Piping

In the late summer of 1931, the American Society of Mechanical Engineers issued a code governing the manufacture and inspection of welded boiler drums. In the short time since the A.S.M.E. code was formulated and the manufacturing facilities became available, a large number of welded boiler drums has been sold.

There has also been a marked increase in the use of electric and gas welding for piping for heating systems. Welded fittings of many types are now manufactured as substitutes for screwed and flanged connections.

*Appreciation is expressed for information received from Frank P. McKibben, Consulting Engineer.



Aluminum Co. of America

Erection of louvered sidewalls constructed of aluminum alloy 4S for Cleveland Municipal Stadium, Walker and Weeks, architects. The section shown above is 6 feet wide and 21 feet long and weighs 65 pounds.

ALUMINUM

New Alloys and Finishes

A new aluminum-manganese-magnesium alloy (4S) has a tensile strength of 26,000 lb. per sq. in. in the annealed condition and 43,000 lb. per sq. in. in the hard temper. It is a medium-strength alloy with high corrosion resistance and good forming properties.

An alloy wire which can be woven has been developed, and wire screen cloth fabricated from it has been placed on the market. High reflectivity of aluminum to ultra-violet should allow beneficial sun rays to pass through screen.

Oxide finishes impregnated with mineral colors are now available, and although they have little more than a year's test against the weather, they are giving promise of having practical application.

Structural Applications

The technique of welding aluminum has been advanced by research. Curtain walls for the eighth floor of the Federal Reserve Bank Building, Pittsburgh, Pa., (Walker and Weeks, architects,) constructed with 3-inch steel channels and a combination of extruded aluminum shapes and sheets for the exterior, are 3½-inches thick, with rockwool insulation and plaster backing and have an insulation value equal to 32 inches of masonry, yet weigh only one-sixth as much. Shop-fabrication and reduction of assembly time on location effected important savings.

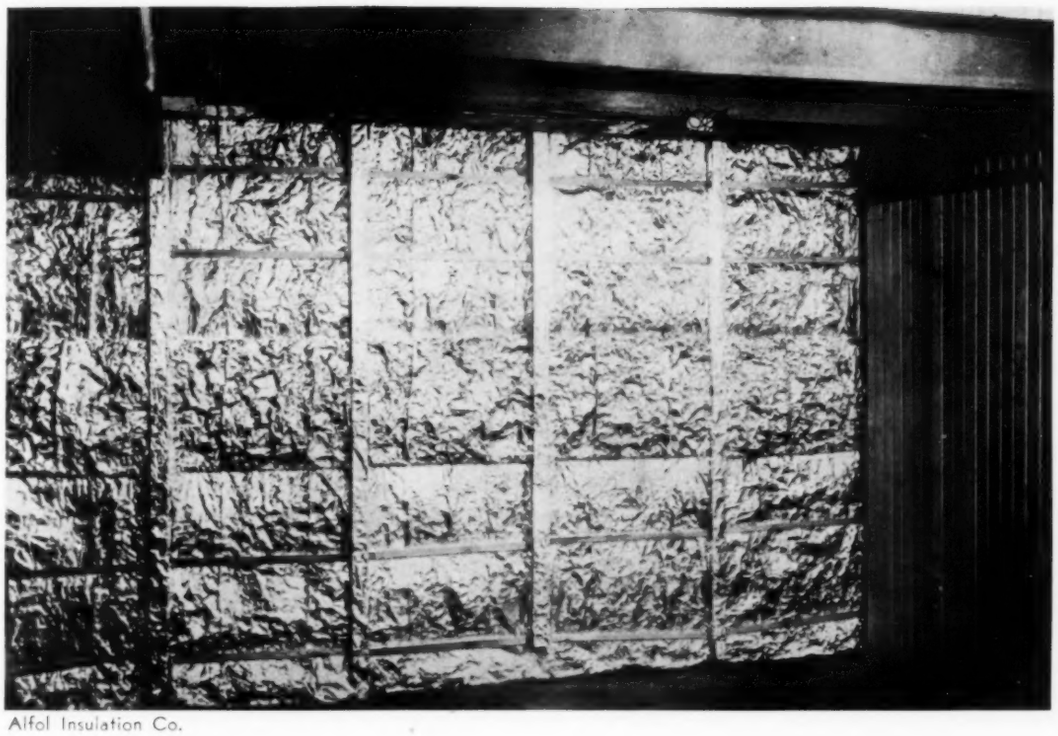
The Aluminaire house, designed by A. L. Kocher and A. Frey and built for the New York Architectural League Show, April, 1931 (later reerected on Long Island, N. Y.), has aluminum columns and girders. Corrugated insulated aluminum sheets are used for the exterior walls. The dead load of the finished structure is less than 10 lb. per sq. ft. of floor space.

Removable motor-operated aluminum skylight-roofs were installed over the roof garden of the new Waldorf-Astoria Hotel in New York City (Schultze and Weaver, architects).

Aluminum and Ultra-Violet Radiation

Aluminum properly prepared is an efficient reflector of ultra-violet radiation and has found use in dual-purpose lighting. (See *Lighting for Health Maintenance*, pages 298-300, THE ARCHITECTURAL RECORD, October, 1931.) Various etching treatments have been developed to increase its reflectivity for both visible and ultra-violet radiation (75-85 per cent for visible, 65-80 per cent for ultra-violet). The best reflecting surfaces are produced on pure aluminum and sheet of commercial purity known as 2S. Etching with sodium hydroxide and sodium fluoride followed by nitric acid, and etching with hydrofluoric acid and nitric acid, has been found particularly effective.*

*Ultra-violet and Light Reflecting Properties of Aluminum, by A. H. Taylor and Junius D. Edwards. JOURNAL OF THE OPTICAL SOCIETY OF AMERICA, Vol. 21, No. 10, October, 1931.



Alfol Insulation Co.

ALUMINUM FOIL INSULATION

Insulation of boiler shaft wall aboard a ship. This type of insulation is built up of successive layers of crumbled or plain aluminum foil .0003 inch in thickness at approximately 3/8" intervals and weighs only 3 oz. a cubic foot. Conductivities as low as 0.20 B.t.u. have been obtained at a mean temperature of 110 degrees F.

Aluminum Foil Insulation*

Trade name "Alfol." The use of aluminum foil in air-cell type of temperature insulation is based on the insulating value of air spaces bounded by bright metallic surfaces. Bright polished aluminum reflects about 95 per cent of the radiant heat which falls upon its surface and retains its high reflectivity after long exposure to the atmosphere even at high temperatures. The thin layer of transparent oxide which forms on the surface protects the metal without any appreciable decrease in reflectivity.

The insulation is built up of successive layers of aluminum foil .0003 inch in thickness at intervals of approximately 3/8-inch. With plain sheets this spacing is obtained by means of strips or corrugated sheets of other insulating material. Generally, however, crumbled foil is used, providing its own spacing with a minimum of contacts. The foil is protected by sheathing of heavier aluminum or other material.

Thermal efficiency: Tests show that insulation using plain foil has insulation value better than cork for the same thickness, while crumbled foil has values approximately those of cork.

Weight: A cubic foot of aluminum-foil insulation weighs 3 oz., as compared with 10 lb. for cork and 17 lb. for magnesia. The French liner "Atlantique," now under construction, is using about 4 tons of Alfol insulation on equipment which would have required 380 tons of cork and magnesia to give equal insulating efficiency.

Low heat storage: Important in insulation of equipment and spaces which are intermittently operated, since it saves time in attaining the desired temperature and reduces energy losses occurring in heating up and cooling off.

Incombustible: Aluminum foil melts above 1200° F. Verminproof, resistant to most industrial fumes and vapors. Impermeable to moisture. Can be treated with lacquer to increase its resistance to corrosive gases and salt water. Easily assembled and applied without causing dust.

Present uses include insulation of pipe lines, tank cars, household refrigerators, refrigerator cars, ships, water and oil tanks and refrigerator rooms in meat and fish industries. Metal houses built in Germany have outer walls of copper and sheet steel with 2" Alfol insulation.

*For detailed information see "Aluminum Foil as a Basis of Insulation," by Max Breitung, REFRIGERATING ENGINEERING, July, 1931. Appreciation is expressed for information from J. D. Edwards, assistant director of research, Aluminum Research Laboratories.

CONCRETE

Ready-Mixed Concrete

The use of ready-mixed concrete especially in congested sections of cities is rapidly increasing. Tests made at the Fritz Engineering Laboratory of Lehigh University to determine the effects on the properties of concrete, from transporting it for 2½ hours in a truck whose container consisted of a closed rotating drum without mixing blades, showed that the strength and other properties of the concrete improved progressively throughout the test period.†

Lightweight Concrete

Various properties of structural concrete, in which haydite (burned shale or clay) is used as the aggregate either alone or with sand, were investigated in a series of tests of reinforced concrete slabs and beams at the University of Illinois. The light weight of haydite concrete (approximately 100 lb. per cu. ft.) permits reduction in dead load compared with ordinary concrete, thus allowing a reduction in size of members or an increase in span, as well as decreasing loads on columns and footings. The effect of the low modulus of elasticity of haydite concrete is to lower the neutral axis in beam and slab construction and to require a higher percentage of steel for balanced reinforcement. However, the depth of members may be decreased so that the saving in concrete quantities will offset the increase in steel requirements.

Combining the effects of light weight and low modulus of elasticity and taking advantage of possible reduction in slab depth, it was found that the substitution of "C" haydite for gravel concrete will permit a decrease of 12 to 9 per cent of concrete with an increase of 5 to 8 per cent of steel. With all-haydite concrete there may be 20 to 15 per cent reduction in concrete with 11 to 17 percent increase in steel. In rectangular beam design the conditions are still more favorable to the use of haydite. The reduction of dead load effects considerable savings in structural steel tonnage.*

ELECTRON TUBE CONTROL

Standardized production of complete electronic control devices in unit form has simplified the adaptation of electron tubes to industrial and building applications. The following are types of electron tube installations now in operation.**

Photoelectric Tubes as Relays

A photoelectric tube has the property of passing electric current when visible or invisible light falls on its electron-discharging cathode. The cathode, when illuminated, emits electrons which pass on to the anode and thus permit passage of an electric current. The current which it passes is proportional to the amount of light striking it. Amplified by other tubes, the current can be used to actuate a relay that in turn controls the operation of electric devices. The photoelectric relay can therefore be used for control purposes where means for interrupting or changing the intensity of light can be provided. The tubes can be made selective, responding only to predetermined wavelengths.

Counting

Counting devices have been installed in theaters, vehicular tunnels, on highway bridges and in many industrial processes. Applications in the General Electric Company's plants involve a conveyor in refrigerator production. As the refrigerator units pass along, they intercept a beam of light from a source on one side of the conveyor to a photoelectric tube in a suitable housing on the other side. The electric impulses actuate an electric counter.

Operation of Doors

By directing a focused beam of light across the path to a doorway, a photoelectric relay can be made to actuate a mechanical door opener on the approach of a person wishing to pass through. This has found practical application in hotels and restaurants where waitresses may easily pass back and forth between dining room and kitchen without physical effort or hazard in opening the door. The operation can be timed to meet specific requirements. Similar installations have been made for garage doors.

Safety and Protection Devices

Photoelectric devices installed on department-store elevators make it impossible for elevator operators to close doors or to start cars as long as any person is within a beam of light which shines across the threshold. The Westinghouse Electric & Manufacturing Company has developed a traffic control system using photocells. The system which has been adapted to various forms of street intersections and traffic conditions is operated by interruption of a light beam by vehicles. In a German automatic train control a small searchlight on the locomotive throws a beam on a signal-post mirror which reflects the light to a photoelectric relay on the engine, producing a visible signal in the cab and stopping the train if the engineer ignores the signal. A selective photoelectric receiver which detects signals of diffused light of low intensities has been developed for aiding aviation and airplane landing, especially in dense white fog. The sensitivity of this device is from 6 to 13,000 times as great as that of the eye in the range of background intensity from darkness up to moonlight.*

Other uses: Burglar and fire-alarm devices.

†CONCRETE, September, 1931. *CONCRETE, February, 1931. Appreciation is expressed for information from N. M. Stineman, Editor CONCRETE.

**For further information see: GENERAL ELECTRIC REVIEW, December, 1931, published by General Electric Company; current issues of ELECTRONICS, published by McGraw-Hill Company, New York City, and Recent Technical Developments, THE ARCHITECTURAL RECORD, December, 1930.

*A Study of Light Signals in Aviation and Navigation; a paper by I. Langmuir and W. F. Westendorp, presented at the 1931 Annual Convention of the American Society of Mechanical Engineers.

Material Handling

The Logan Conveyor Company has applied photoelectric relays to the control of material conveyors where installations are necessary to switch the product from one conveyor line to another. Small flags are placed in different positions on each container carrying the material over the conveyor line. One photoelectric relay and two light sources are placed near each switching point in such a manner that only the flags in predetermined positions will intercept the two light beams simultaneously. The relays in turn operate equipment which sends the moving material to its proper destination.

A similar method has been developed by the Cleveland Crane & Engineering Company for distributing mail sacks at railroad terminals.

Lighting Control

Photoelectric control has been applied to the street-lighting circuits in Glens Falls, N. Y., and to a part of the street-lighting circuits in Albany, N. Y. At a predetermined degree of darkness, the photoelectric tube actuates a relay which in turn operates the switch controlling the street lights. When natural light is sufficiently restored the operation is reversed. A time-delay prevents instantaneous operation or fluttering in response to passage of clouds over the sun or a flash as of lightning.

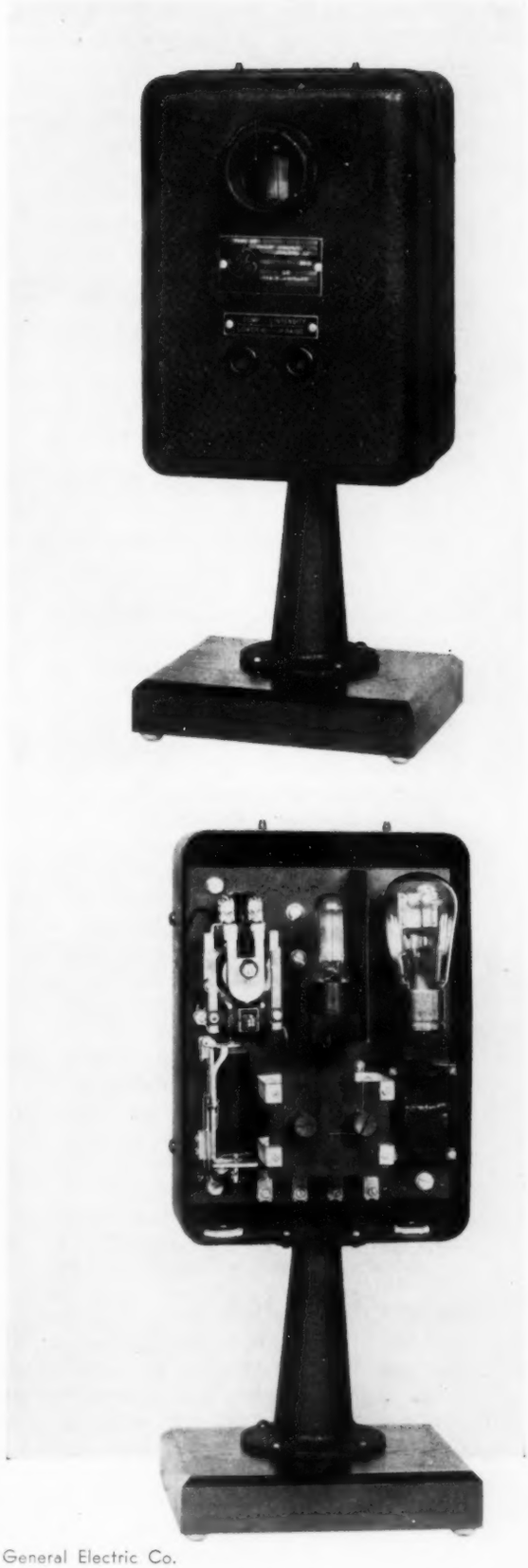
Recent tests in an industrial plant showed a saving of 50 per cent of the electricity required in the customary hand-controlled shop lighting system through the use of photoelectric control which maintained predetermined lighting intensities.

Thyratron Tubes as Valves

The utility of a Thyratron tube depends upon its ability to pass current of large amounts whose magnitudes may be accurately controlled. This control may be exercised in either of two ways: (1) by the application of a voltage of predetermined magnitude to the grid of the tube to start or stop current flow, or (2) by changing the phase relationship between the grid and anode (with alternating current applied to the grid) to govern the average amount of current. This means that the tube can be used to start or stop electrical operations or to control them during operation.

Start-Stop Control

An industrial application is found in control for intermittent line and spot-welding machines, making possible high speeds of interruption without the inertia, wear and contacts of the mechanical type of control. The control is obtained by means of a motor-driven cam switch in the grid circuit of the tube. The motor is run at the speed at which it is desired to make the welds and the cam switch intermittently imposes a voltage on the grid, thereby causing the tube to pass current intermittently. The passing of current acts as a short circuit on one winding of a series transformer, varying the impedance of the other winding which is in series with the welding transformer.



General Electric Co.

Photoelectric lighting control unit mounted for indoor use, showing photoelectric tube in center and amplifying tube to the right.

Control of Electric Equipment During Operation

Thyratron control is used in the wire-drawing shops of the General Electric Company at Schenectady to keep the wire in proper tension while it is being reeled. As the wire is drawn at a constant rate, the speed of the rereel spool must be constantly decreased to compensate for the increasing diameter of the surface on which the layers of wire are being wound. The spool is driven by a motor supplied with power by the rectifying action of a Thyratron tube. A small reactor is included in the grid circuit of the tube; its reactance determines the phase relationship between the grid and anode, thus governing the amount of current rectified by the tube and consequently the speed of the motor. The wire runs over a rider pulley mechanically connected to the reactor core. The loop on which the pulley rides decreases when the rereel motor is running too fast; the core is drawn into the reactor, increasing its reactance and causing the Thyratron tube to pass less current, thus slowing down the motor. Conversely, if the loop increases in length the speed of the motor is increased.

A similar application has been made in the processing of rubber by the B. F. Goodrich Company to synchronize the speeds of motor-driven conveyors in a chain.

Control of Lighting

Thyratron tubes are used in the control for stage and house-lighting in theaters and auditoriums and in the control of mobile color lighting, floodlighting, show-window lighting, advertising signs, etc. Control systems have been installed in the Chicago Civic Opera House, the new Earl Carroll Theater in New York City and the new R.K.O. theaters in Schenectady and Albany, N. Y. The manipulating is done with knobs or switches at a comparatively small control desk which, in theaters, can be placed in front of the curtain where the operator can see the effects produced. The scheme of control is that of shifting the phase relationship between the grid and anode of the Thyratron tube. The controlled Thyratron output supplies varying amounts of direct current to reactors whose a.c. circuits control the lights. A few watts suffice to control circuits of several hundred kilowatts.

Oscillator Tubes as Calipers

The use of oscillator tubes in process control permits continuous measurements of materials produced in sheet form and measurements to extremely fine dimensions without contacting or disturbing the measured product.

For example, when producing rubber in a continuous sheet, the sheet is passed between two plates of a condenser. The capacity of the condenser and consequently its impedance varies with the thickness of the rubber sheet. The changing impedance changes the current in the tuned circuit to which the condenser is connected. A meter directly indicates the thickness of the sheet. The device easily measures to .0001 inch, the thickness of a rubber sheet whose entire thickness is about .0013 inch. With a slight change of electrical connections the caliper can be used for measuring metal foil.

The condenser method has been applied to ultra-micrometers used in paper mills to measure moisture content of manufactured paper. A certain percentage of moisture is desirable for high-speed printing. When a rayon ribbon is held above a swiftly-moving sheet of newsprint, the ribbon's length varies with the moisture content of the paper. These minute changes in ribbon length are indicated by the meter in per cent of moisture content.

ELEVATORS

Speed

Elevators having a rated speed of 1200 f.p.m. are now in operation.

Space Saving

Larger buildings have made it practical to use larger cars, particularly for serving lower floors, and the standard sizes for office buildings are now 2500 lb., 3000 lb., 3500 lb., 4000 lb., and in some cases 4500 lb. For department stores elevators of 3500 to 5000 lb. capacity are used.

Double-deck elevators have been installed in the Cities Service Building in New York City. This Otis system is analogous to adding cars to a train and may be extended to triple-compartment units. The cars are so arranged that the elevators stop at adjacent floors simultaneously. Two lower levels are required. Passengers going to odd floors use one compartment; passengers going to even floors use the other. Under the most favorable conditions it is possible for elevators of this type to handle more than double the amount of passengers in a given time that a single-deck elevator serving the same number of floors could handle. These elevators are adaptable to the highest speed.

Two elevators, an express and a local, are operated in the same shaft in the Westinghouse office building in Pittsburgh, Pa. This Westinghouse development has automatic safety devices to prevent collision.

Elevators for Handling Automobiles

Warehouses and loft buildings have been equipped with large elevators which automatically maintain the level at the landings and which permit heavy trucks to be loaded and unloaded at the various floors. Some of these elevators have duties of 30,000 lb. at 250 f.p.m. A number of garages for parking automobiles have been built with high-speed self-leveling elevators with various methods of getting the automobiles on and off the cars. Some of these elevators run at speeds of 500 f.p.m.

ELECTRICAL COMMUNICATION

Sound Equipment for Hotels

The radio distribution system designed by the Bell Telephone Laboratories and installed by the Western Electric Company in the new Waldorf-Astoria Hotel in New York City (Schultze and Weaver, architects) makes six programs available simultaneously. Programs may be obtained from any combination of three sources: radio picked up from the air or wired directly into the hotel from broadcasting studios, phonograph records, and programs picked up by microphone in any of the public rooms in the hotel. These programs are then distributed to the public rooms and to the guest rooms and apartments. Programs originating in the hotel may be transmitted over telephone lines to radio broadcasting stations without the addition of other speech input equipment.

Each of the 137 hotel apartments is equipped with antenna and ground connection so that its occupants may use their own radio receivers if desired. The program distribution system serving the 2000 guest rooms consists of six separate channels which may be used independently of each other with any of the program sources mentioned above. Each guest room has individual volume control and program selector switch. The maximum volume obtainable by the guest is limited so that the volume in any guest room will not be objectionable in adjoining rooms.

Microphones can be connected at 72 locations in the hotel where events are likely to occur. Concealed loud-speakers are distributed in the public rooms. The ballroom has a permanent installation of sound picture apparatus. Portable sound picture equipment can be used in any of the public rooms.

Remote Control for Residence Radio System

A Teletektor Radio Control System announced by the Stromberg-Carlson Telephone Manufacturing Company will stop and start either radio or phonograph, control volume, switch loud speakers on and off and tune in on a selected number of stations from any place in the house.

The radio chassis is placed in a concealed steel locker or cabinet. Concealed wiring is run to outlets in rooms where speaker and control may be desired. Speakers can be stationary or a transportable speaker can be plugged into conveniently located outlets. The control is placed in a 10″ x 3¾″ shallow outlet box with push button control. A pilot lamp and a tuning meter aid in tuning. The boxes can be mounted flush or can be plugged into outlets. An automatic record-shifting phonograph can also be operated from the control.

Teletypewriter Service

Exchanges for interconnection of teletypewriters—machines which typewrite electrically over wires—have been developed. A two-way nation-wide switched system which provides typewritten communication similar to telephone service has been opened by the American Telephone and Telegraph Company and its Associated Companies in the Bell System. The teletypewriter operates at a maximum speed of 60 words a minute. Six copies can be made by each machine. The present rates compare favorably with other electrical communication.

The teletype equipment of over 9000 customers of the Western Union and Postal Telegraph Companies has also been linked together in one system.

The teletypewriter system installed by the Western Electric Company in the new Waldorf-Astoria Hotel comprises two main groups: one group handles the business attendant upon arrival and departure of guests; the second group handles paging and messages.

An experimental radio teletypewriter circuit has been set up by the Aeronautics Branch, U. S. Department of Commerce in order to test the feasibility of teletypewriter transmission from wire circuits to remote points by radio.

Ultra-Short Radio Waves

Successfully transmitted two-way conversation across the English Channel. An antenna one inch in length, a wave length of seven inches and power of one-half a watt were used. This development opens up a new range of frequencies for radio use.

Television

There are at present 28 stations in the United States experimenting with visual broadcasting on short wave lengths between 100 and 150 meters. Four bands of frequencies, each 100 kilocycles wide, have been assigned for this purpose.

A complete visual broadcasting station W2XAB is operated forty hours a week by the Columbia Broadcasting System, Inc., for experimental pictures. Synchronized sound is transmitted simultaneously from short wave station W2XE.

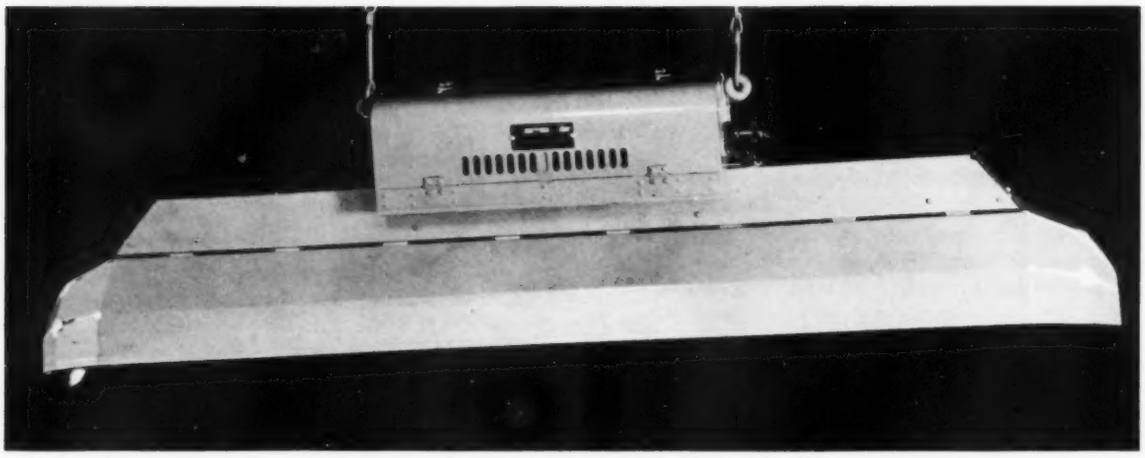
The television camera has been improved and outdoor scenes may now be televised. A new projector type receiver throws the televised image on a screen. Commercial models project a picture from three inches to a foot square. It is not essenti atlhat the room be darkened.

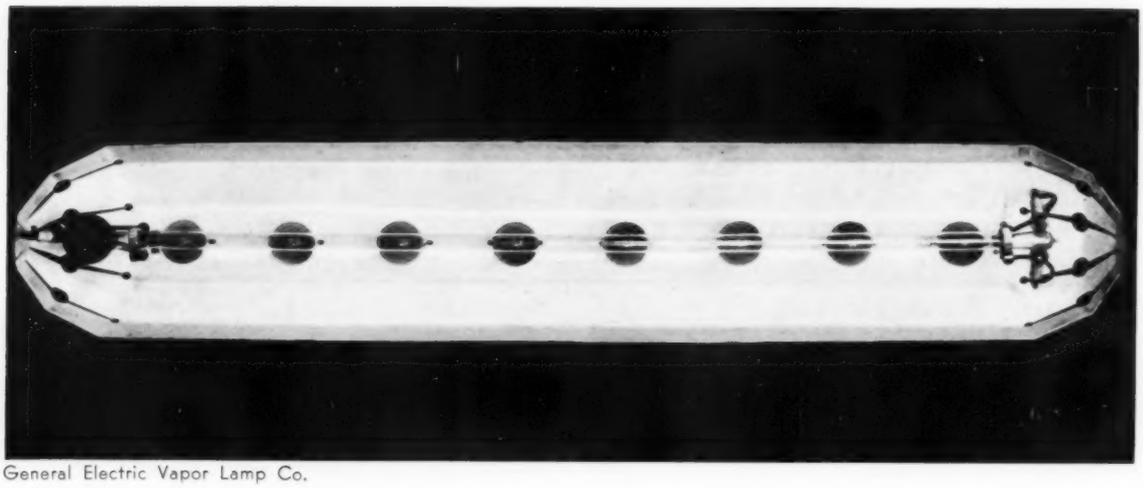
Reproducing and Recording Sound Equipment*

Various types of portable 16-mm. reproducing equipment have been placed on the market for use in schools, churches and industrial concerns. This equipment reproduces sound from disc records in synchronism with the projection of motion pictures from 16-mm. film. An amplifier and loud speaker are supplied as part of this trunk-mounted equipment.

An automatic level recorder which automatically records various sound levels over a period of time may be used in determining sites of schools, hospitals and residential districts where noise is an important factor.

*Appreciation is expressed for information from G. T. Stanton, Electrical Research Products, Inc.

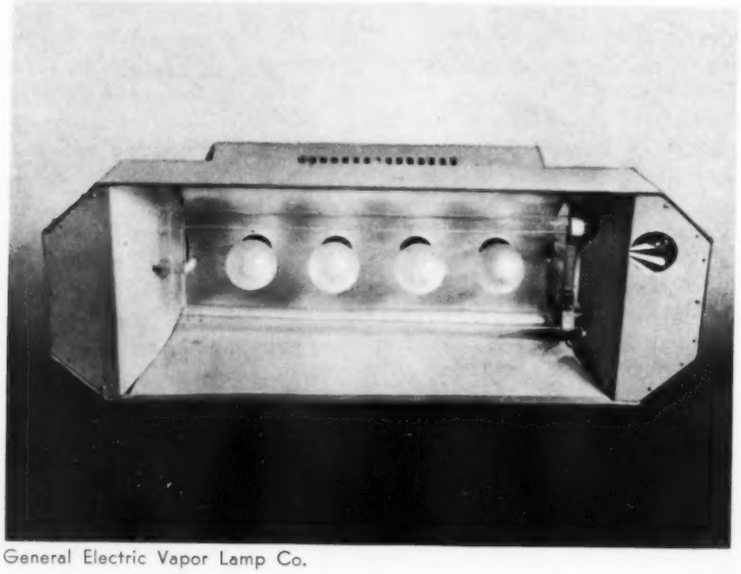




General Electric Vapor Lamp Co.

COOPER HEWITT-MAZDA COMBINATION UNIT

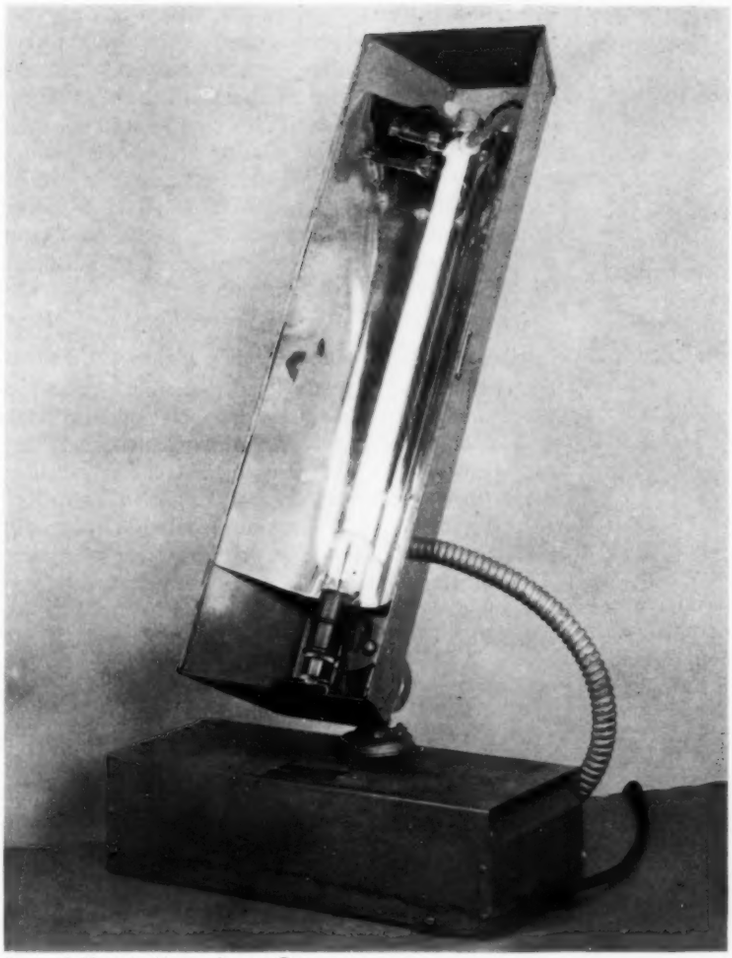
For industrial use. Lighting from combined sources of one 450-watt mercury-vapor tube and eight standard incandescent lamps. Over-all length, 60 inches. The transformer is housed above the reflector.



General Electric Vapor Lamp Co.

MERCURY-VAPOR-INCANDESCENT COMBINATION UNIT

Designed for the Simonds Saw and Steel Company's windowless factory, Fitchburg, Mass. This combination provides light subjectively white in color.



General Electric Vapor Lamp Co.

HOT-CATHODE NEON FLOODLIGHTING UNIT

Widespread and flat distribution of light permits this unit to be used near the areas which are to be floodlighted. Neon red color.

GASEOUS-CONDUCTION LAMPS*

The Spanner-Germer-Doring Lamp

A cold-cathode 110-volt gaseous illuminant which can be connected directly with any 110-volt d.c. or a.c. socket without use of transformer. The lamp —developed in Germany and recently shown in the United States—is claimed to be three to five times more efficient than the best filament-type incandescent lamp. Straight tubes and tubes curved back to produce a bulb which can be screwed into any household socket were shown. The mercury-vapor used in the tubes can be mixed with other elements to produce various colors. A mixture of the vapors of mercury, zinc and sodium gives a light much like daylight. There is no liquid in the tube but merely gas at low pressure. Barium oxide is used in the cathodes. When electrically excited, the oxide discharges electrons, which, as they flash through the tube, tear off electrons from the atoms of the gas and convert them into ions. The ions glow when they reacquire lost electrons.†

2-Watt Neon Glow Lamp

Announced by the General Electric Vapor Lamp Company for 110-, 115- or 120-volt d.c. or a.c. service, and for applications where economy and low levels of illumination are required, such as guide lights in bedrooms, nurseries, stairs, exit lights for theaters and auditoriums, night-lighting and silent indicators for hospitals and signal lamps for calling systems and isolated lighting circuits.

The bulb contains neon gas. The characteristic orange-red neon light is obtained as a negative glow discharge from rigid metallic electrodes sealed within the bulb. On d.c. only the negative electrode glows. The bulb is mounted on a base which fits standard sockets. Useful life, approximately 3000 hours. Price 75 cents.

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*A comprehensive summary of recent developments in electric lighting was published in the October, 1931, issue of THE ARCHITECTURAL RECORD.

†ELECTRONICS, October, 1931.

HEATING, COOLING, AIR CONDITIONING *

Panel Heating With Electricity

An experimental house has been designed and built by the Westinghouse Electric & Manufacturing Company's Laboratories in East Pittsburgh to develop economical methods of heating and ventilating, more conducive to health and comfort than present methods.

Most present methods of heating for winter comfort depend upon heating the surrounding air. To some extent this air heats surrounding walls, but there is always a temperature difference between the air and the walls, especially those of present-type masonry construction with high specific heat.

At normal humidity and temperature, approximately 44 per cent of human body heat is lost by radiation, heating surrounding bodies independently of the surrounding air. By heating walls and ceiling, this loss of radiation can be controlled. Body heat losses through evaporation and convection are controlled by regulating humidity, temperature and circulation of air.

The inside walls of this experimental house are constructed of pivoted aluminum panels which can be turned as louvers to aid control of air circulation. The panels are painted ivory on the room side and left bright on the other. An electric heating-unit is attached to the back of each panel, and similar units are distributed evenly on the upper side of the aluminum ceiling. The heat elements are controlled by individual switches, and it is possible to heat any one panel or series of panels, the ceiling alone or selected sections of the wall surface. With the panels at body temperature the air can be kept as low as 60° F. without any discomfort. Means of cooling are being studied. The present structure is windowless.

Use of Gas

Transportation of natural gas to large centers of population has increased the use of this fuel in buildings. The pipe-line of natural gas from the fields of Texas to Chicago was completed in the latter part of 1930 and extension of natural gas lines to other sections of the country is going on at a rapid pace. It is estimated that 1,747,500,000,000 cubic feet of natural gas, equivalent in heating value to 87,375,000 tons of coal, were consumed in 1931.

The American Gas Association Inc. is conducting a field research project in residential cooling and summer air-conditioning with the heat energy of gas as motive power. With this system cooling and dehumidification can be accomplished separately, with each independent of the other, as different from the conventional compression systems of air conditioning. Silica-gel, which has a great affinity for water vapor, is used as the dehumidifying agent. The cooling necessary is only that required for the removal of sensible heat originating in the conditioned area. This can be accomplished by means of evaporative cooling or indirect cooling using city water. By separating the operations of cooling and dehumidification it is hoped to make summer air-conditioning available at low cost and at the same time to obtain a balance for the large winter load in gas consumption.†

Combination Steam and Electric Heating Unit

An electric and a steam heating element placed in one cabinet can be operated in conjunction with each other or separately. The main purpose of this combination is to furnish auxiliary electric heat when the central heating plant is not in operation. A motor-driven fan for air circulation may also be operated independently of the heating elements. Air-washing and humidification attachments can be included in this unit. The Air-Way Electric Appliance Corporation, Toledo, Ohio.

Mechanical Stokers

Of small coal capacity for residential heating plants have been developed to a point where they closely parallel the larger types of industrial stokers in efficiency and performance. Most of them are electrically driven and are semi-automatic.

Conditioned-Air Refrigeration

Three new types of refrigerator units for commercial refrigeration in stores and display rooms have been developed by the General Electric Company. Forced-air cooling of the compressor case and condenser is used. One model incorporates forced-air cooling of the evaporator with a consequent circulation and humidification of the air in the refrigerator cabinet.

The units are of the remote design and can be placed up to 50 feet from the cabinet. The use of forced-air circulation over the evaorators of units used in fresh-food cabinets and display cases makes it possible to maintain low temperatures and high relative humidities, thus improving storage conditions. Cut meats can be kept in good condition from two to four times as long as has been possible with other types of equipment. Forced-air evaporators have the additional advantages of air purification, rapid elimination of odors, rapid cooling and increased capacity.

Air-Conditioning in Trains

Passenger trains have been equipped with air-conditioning systems, including dining cars, club cars, Pullman coaches and sleeping cars. Ice and mechanical refrigeration are used.

*Appreciation is expressed for information received from the editors of the following publications: HEATING AND VENTILATING, HEATING, PIPING AND AIR CONDITIONING, and ELECTRICAL WORLD.

†Gas Makes Its Entry into the House Cooling and Summer Air-Conditioning Field, by Eugene D. Milener; paper presented at the Annual Convention, Natural Gas Department, May, 1931. American Gas Association, Inc., New York City.

The handsome new building of the McGraw-Hill Publishing Co., Inc., in New York City. Its interiors are painted with 2200 gallons of Barreled Sunlight.

Raymond Hood, Godley and Fouilhoux, architects.

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Observe particularly the efficient working light in composing, engraving and binding rooms.

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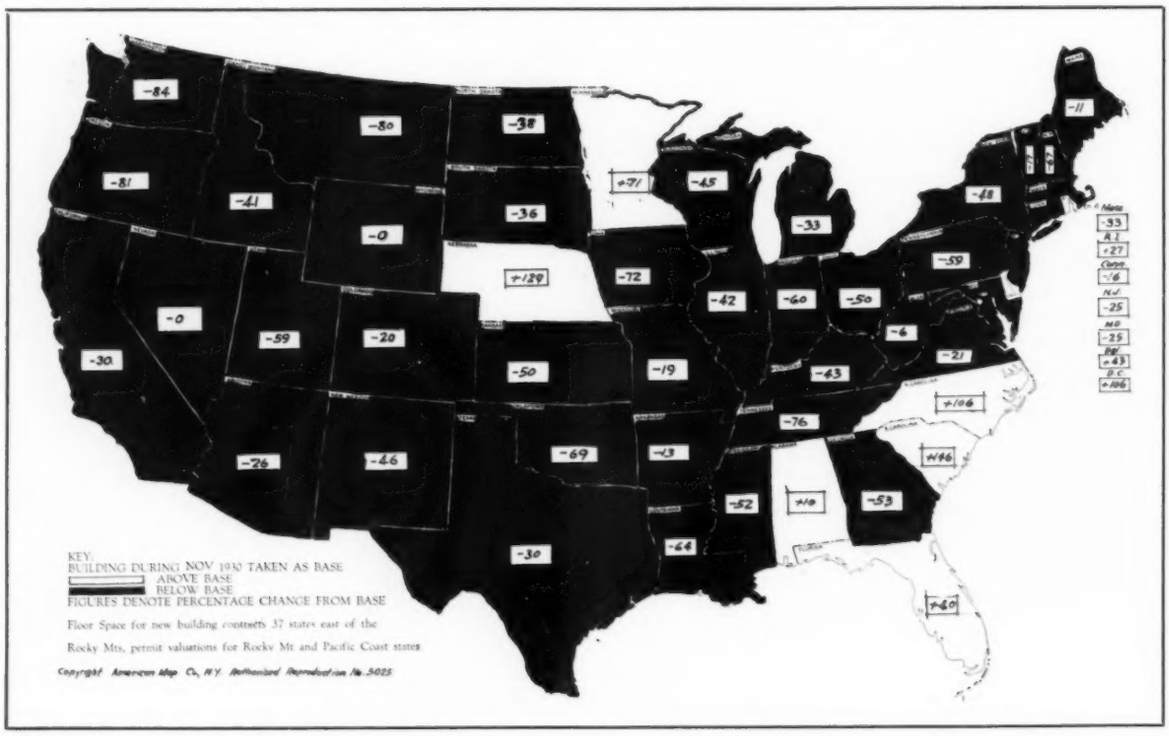


CURRENT BUILDING TRENDS

By L. SETH SCHNITMAN

The November building map showed nine states east of the Rocky Mountains where current building contracts, on a floor space basis, were larger than in November, 1930: Rhode Island, Delaware, District of Columbia, Nebraska, Minnesota, North Carolina, South Carolina, Florida and Alabama. In the preceding month, only six states showed larger building contracts than were reported in October, 1930. In September, thirteen states showed contract gains over the corresponding month of the previous year.

Of the states to show improvement in November, the District of Columbia, North Carolina and Florida showed gains in October and September over their respective totals for 1930.

The retrenchment in building and construction continued through November. Total construction contracts let showed a loss in dollar volume of 40 per cent when compared with November, 1930; the loss from October amounted to 38 per cent as contrasted with a customary seasonal decline of less than 15 per cent.

Residential contracts awarded during November showed a loss in dollar volume of 25 per cent as contrasted with October; the decline from November, 1930, amounted to 44 per cent. Losses from both the previous month and November last year were general among the residential types, with the largest losses shown in apartments. For the elapsed months of 1931 the loss from 1930 in residential buildings awards has, with the November record, been extended to 25 per cent. It is now apparent that for the full year 1931 the loss from 1930 will approximate 27 per cent. The eleven-month record on apartments and apartment hotels showed a decline of 30 per cent from the corresponding period of last year; for hotels the decline amounted to 76 per cent; while for one- and two-family dwellings the decline was only 18 per cent.

Nonresidential building contracts awarded in November showed a decline of 41 per cent from October and a loss of 39 per cent from November of last year. Losses from both the preceding month and November, 1930, were shown for each of the seven major classifications of nonresidential buildings, except public buildings which scored advances over both periods.

For the eleven months of 1931 nonresidential contracts showed a loss of 36 per cent from the corresponding period of 1930. The decline in commercial buildings was 49 per cent, while factories showed a loss of 53 per cent; all other important nonresidential classifications declined also except public buildings which advanced 39 per cent.

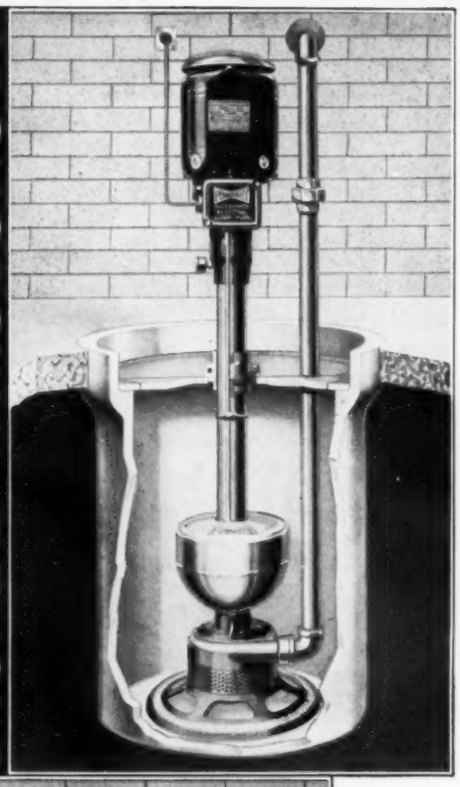
November contracts for public works and utilities showed a loss of 42 per cent from October and a decline of almost 40 per cent from November, 1930. Losses from a year ago were shown in almost all of the important branches of civil engineering work.

For the elapsed months of 1931 contracts for

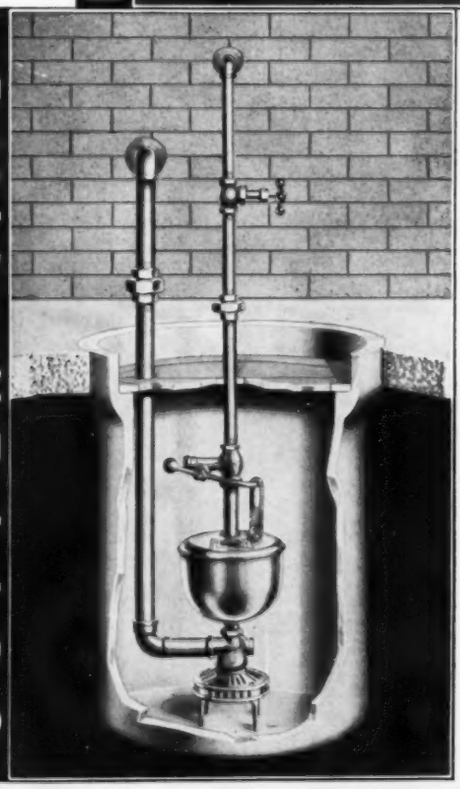
(*Continued on page* 40)

A few reasons why— many Architects specify..

BRONZE THROUGHOUT



COPPER AND



TRADE PENBERTHY PRODUCTS MARK

TO dispose of seepage below sewer level—or where sewerage facilities are not available—many architects prefer one of the units illustrated here. Local conditions determine whether the electric or hydraulic unit will be most economical—but both pumps have many characteristics that appeal to the architect.

Both the Penberthy Automatic Electric Sump Pump and the Penberthy Automatic Hydraulic Cellar Drainer are immune to corrosion—they are copper and bronze throughout. Both are thoroughly dependable under the most severe operating conditions, and are economical of electricity and water power. They are fool-proof, require no kid-glove handling, and are easy to install.

Manufacturing a complete line of both electric and hydraulic units in a full range of types and sizes, the Penberthy organization is especially well qualified to recommend the correct equipment for any specific case. Leading jobbers throughout the country stock both electric and hydraulic units.

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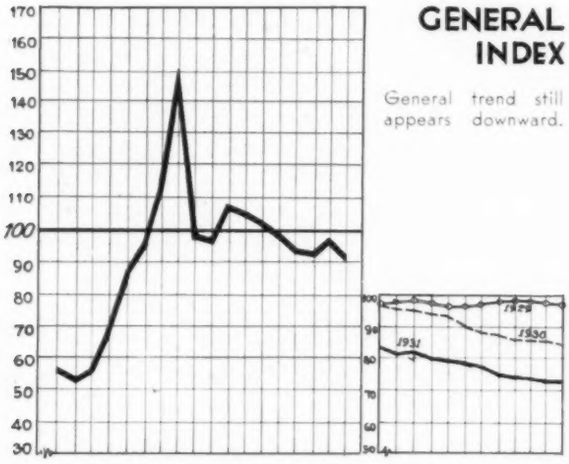
PENBERTHY PUMPS REMOVE SEEPAGE WATER

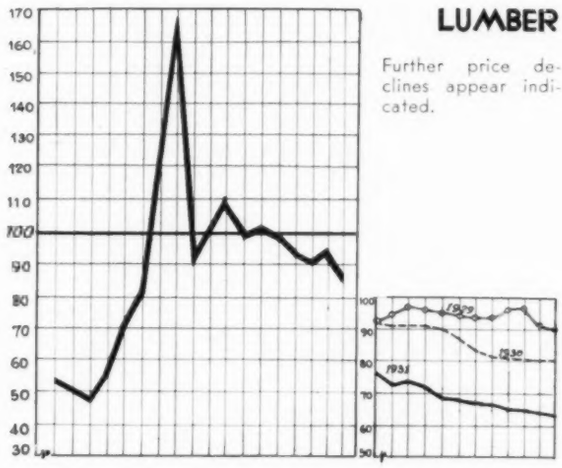
WHOLESALE PRICES FOR BUILDING MATERIALS

1926 Monthly Average—100



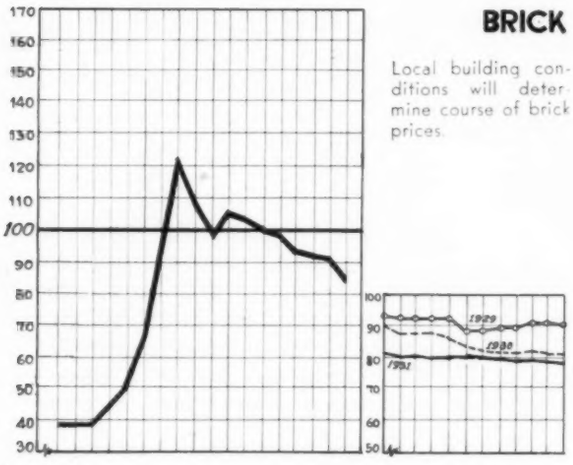
GENERAL INDEX

General trend still appears downward.



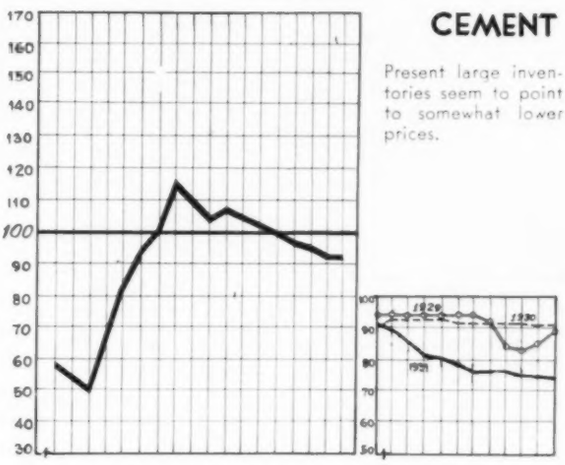
LUMBER

Further price declines appear indicated.



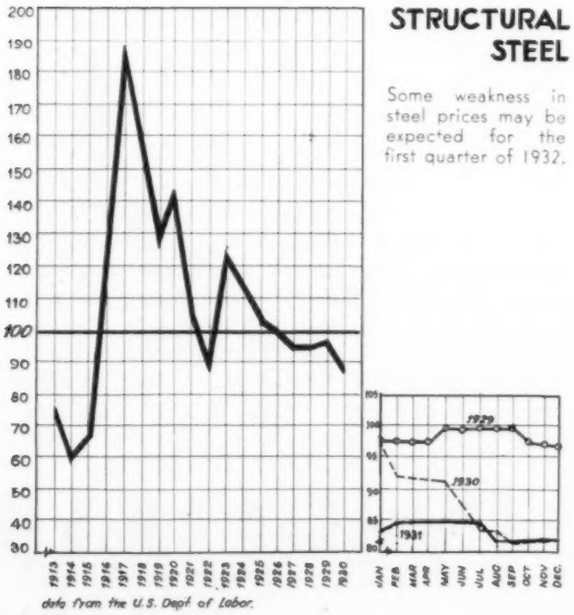
BRICK

Local building conditions will determine course of brick prices.



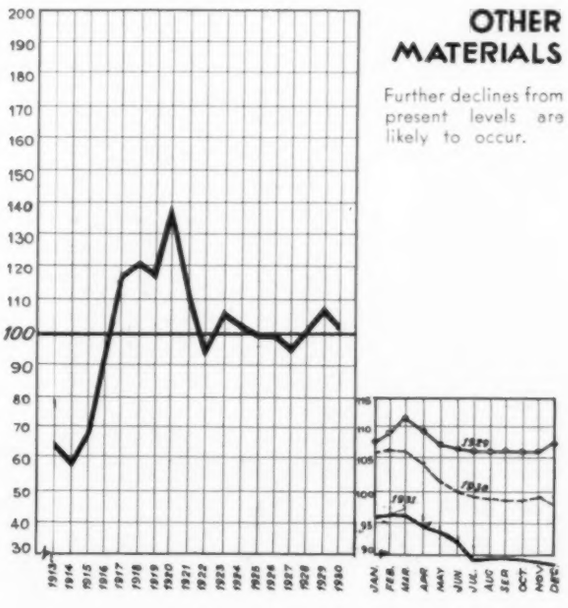
CEMENT

Present large inventories seem to point to somewhat lower prices.



STRUCTURAL STEEL

Some weakness in steel prices may be expected for the first quarter of 1932.



OTHER MATERIALS

Further declines from present levels are likely to occur.

data from the U.S. Dept. of Labor.

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SONNY can read all right. But he likes to walk on the grass. It's just naturally more comfortable than the hard sidewalk.

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SEALEX
LINOLEUM FLOORS

CURRENT BUILDING TRENDS

(*Continued from page 36*)

public works and utilities declined 30 per cent. Bridges and highways suffered a decline of 15 per cent, while other work suffered a 42 per cent loss.

Of the thirteen districts east of the Rocky Mountains, only the Central Northwest reported larger construction contracts in November than in the same month of 1930; gains were scored here in each of the three major construction groups.

Residential gains over November were shown for New England and the Central Northwest. Nonresidential building advances were scored in the Metropolitan area of New York, Middle Atlantic, Southeastern, and Central Northwest districts. Increases in public works and utilities were registered in New England, Upstate New York, Central Northwest and Southern Michigan.

The records for contemplated construction show losses from a year ago in each of the thirteen districts. On these data, a nearby turn for the better in contract-letting is not probable.

Contracts During First Half of December

Construction contracts for the first half of December were running only slightly under the rate shown for November. Compared with a year ago, however, current contract awards for all classes of work were about 40 per cent lower in dollar totals.

Public works and utilities contracts in December as a whole may possibly exceed the total for this class reported in November, but it appears improbable that the current December, 1931, will reach the total of December, 1930.

Residential awards during the first half of December were running somewhat below the rate of November; compared with the corresponding period of 1930 current work was more than 40 per cent behind.

Nonresidential awards during the first half of December were at a rate substantially below the rate of the previous month; at the same time, current awards were less than half as large as those reported for the corresponding half month of 1930.

The Kansas City and Texas territories, however, showed gains for the first half of December as compared with the like period of 1930. The increases in the Kansas City district were provided by nonresidential awards and public works and utilities; while for Texas the gain was produced solely by public works and utilities.

Residential building gains over a year ago were shown in New England and the Central Northwest; nonresidential increases were shown only in the Kansas City territory; while gains in public works and utilities were registered in the Southeast, Central Northwest, Southern Michigan, St. Louis, Kansas City and Texas.

BUFFALO CITY HALL
DIETEL AND WADE, ARCHITECTS, ASSOCIATED WITH SULLIVAN W. JONES

NEWS IN BRIEF

BEAUX-ARTS BALL

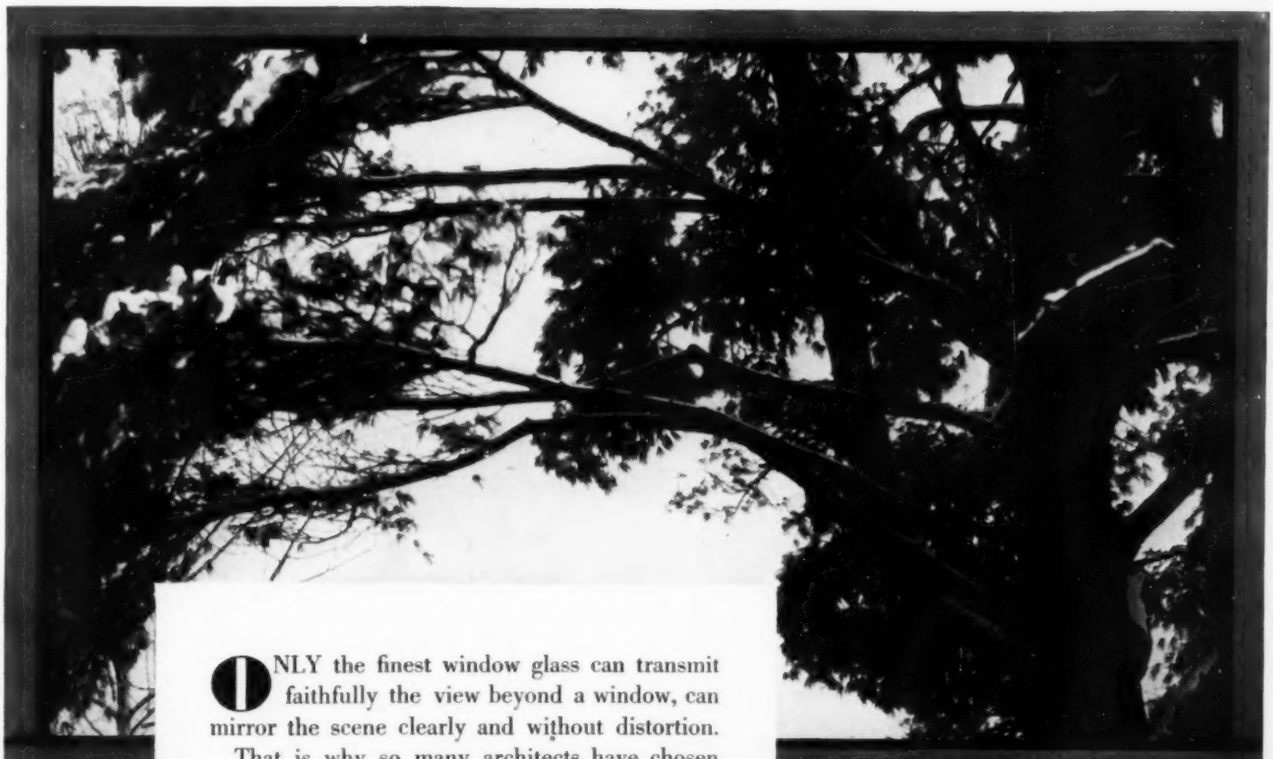
The committee for the Beaux-Arts Ball, "A Pageant of Old New York," and "The First Inaugural Ball of George Washington," which will be held at the Waldorf-Astoria January 22, have made awards in the nation-wide competition among architectural schools and ateliers for the invitation and program cover designs.

First prize of $100 was awarded to J. O. Mahoney, of Yale University. Five other prizes of $10 each were awarded to Miss Martha Andrews, of the Beaux-Arts Atelier, who was placed second; D. G. Browne, of the Atelier Licht; A. C. Davoll, of the New York Architectural Club; O. G. Joseph, University of Southern California, and M. R. Chamberlin, George Washington University.

FRANK LLOYD WRIGHT HONORED AGAIN

Together with Edna St. Vincent Millay and Deems Taylor, Frank Lloyd Wright has been selected by the Hall of Living Leaders of the Thomas Jefferson High School in Brooklyn to be represented in the hall of fame. The field of selection includes poetry, music and architecture.

No Window View *is clearer* than its GLASS



ONLY the finest window glass can transmit faithfully the view beyond a window, can mirror the scene clearly and without distortion.

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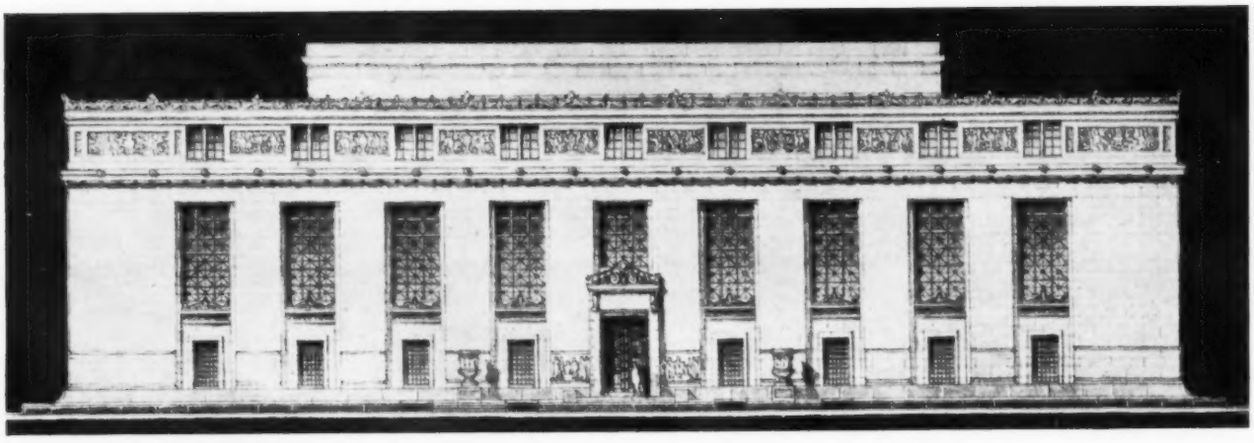
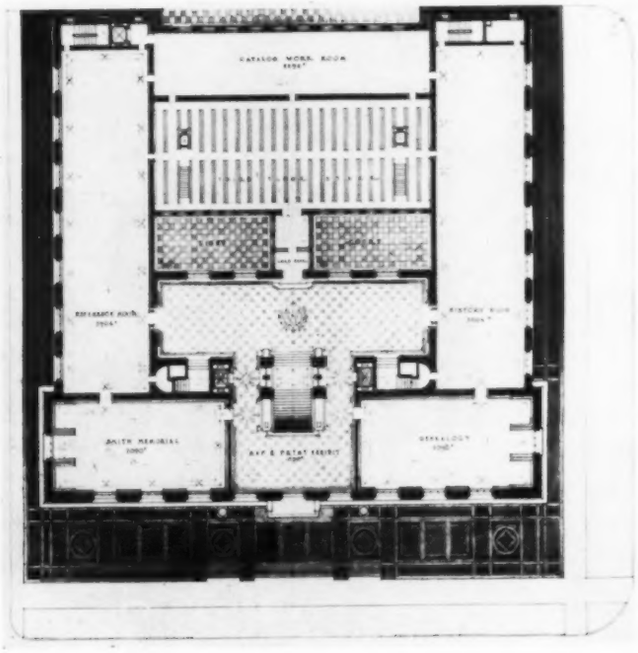
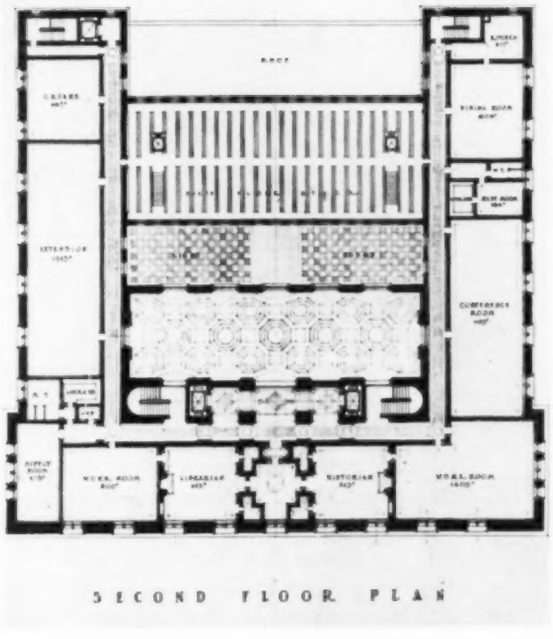
PENNVERNON
flat drawn
WINDOW GLASS







SECOND FLOOR PLAN

FIRST AWARD IN THE NEW INDIANA STATE LIBRARY COMPETITION

Designed by Pierre and Wright, architects. The building provides for the State Library and the Historical Bureau. Size of building: 160 by 180 feet. Capacity: 500,000 volumes.

HARRODSBURG MEMORIAL COMPETITION

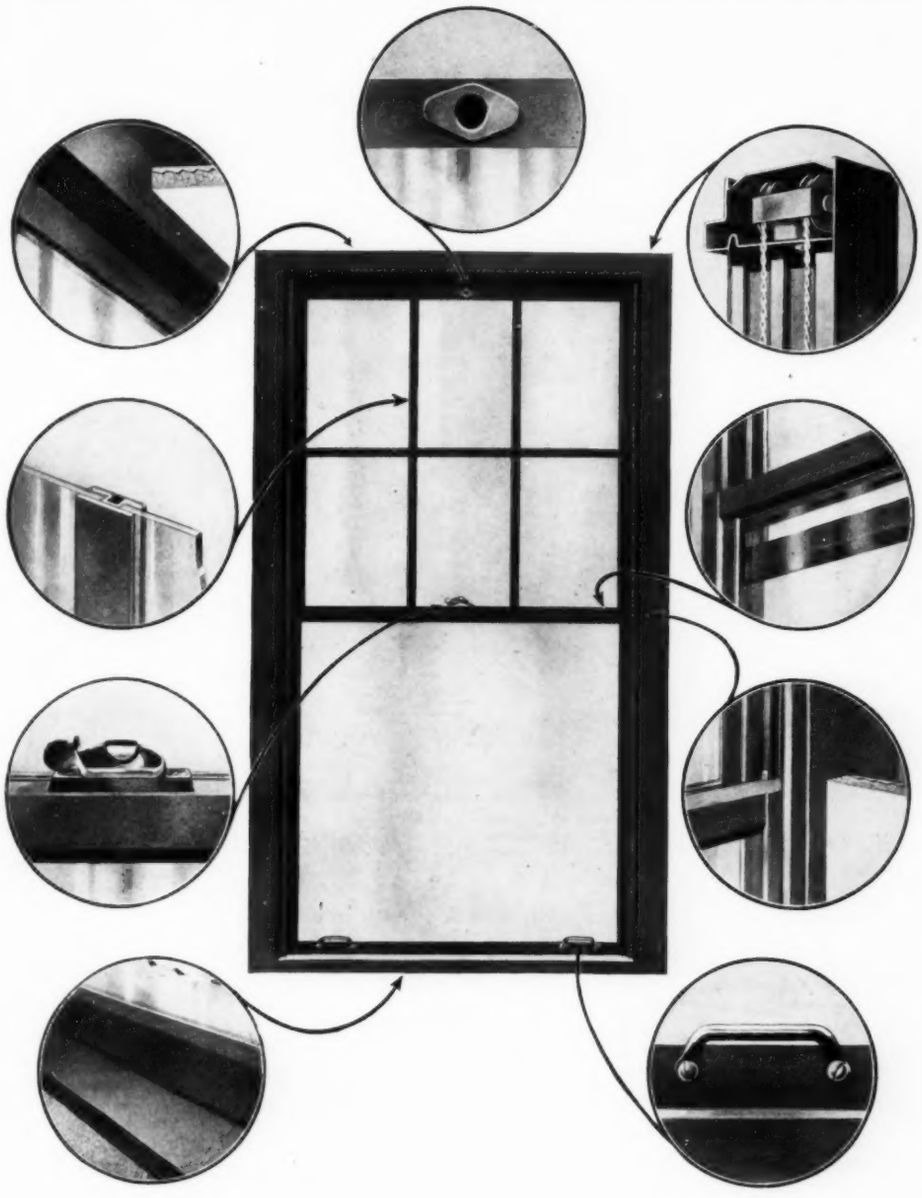
Winning competitors for the design of a Memorial of the First Permanent Settlement of the West at Harrodsburg, Kentucky, to be constructed by the Quartermaster Corps of the Army, have been announced by the War Department. The winners are Francis Keally, architect, and Ulric Ellerhusen, sculptor.

The jury of award consisted of Robert Aitken, Mrs. James Darnell, Frederick Law Olmsted, Edward W. Bonn, Jr., and George G. Will. Victor Mindeleff, architect, acted as professional adviser. Designs were submitted by 73 competitors.

FRENCH TRAVELLING SCHOLARSHIP

Robert Camelot of Paris has been awarded the French Travelling Scholarship of the American Institute of Architects, according to Charles Butler of New York, chairman of the Institute's Committee on Education.

M. Camelot will study American stadiums and playgrounds. For three months he will act as visiting professor of architecture at Massachusetts Institute of Technology in the absence of M. Carlu, who is detained in Paris by illness. Later he will visit the principal cities of the United States and Canada.



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The Prometheus keeps food hot at a minimum cost as it is thoroughly insulated. Doors are of double construction, filled with asbestos. Space between the walls is thoroughly insulated. That also keeps the exterior cool.

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Has a beautiful finish. Trim is heavily chromium plated and polished. Doors are vitreous porcelain when white finish is desired. Will not crack or turn yellow. Shelves are removable for cleaning.

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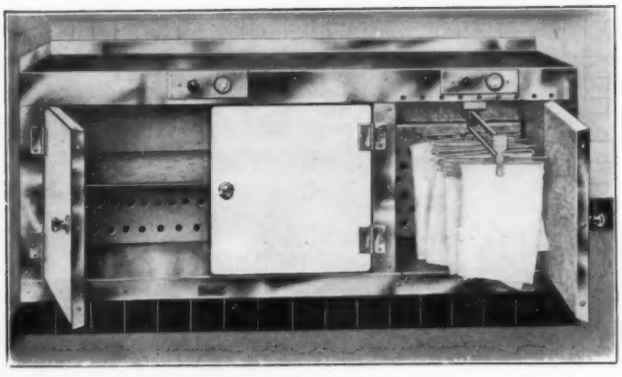

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SUNLIGHTING BUILDING INTERIORS

Two huge roof mirrors flash the sunlight down a skylight shaft and into the building in this invention by Jacques Arthuys, a Parisian. Smaller angled mirrors on each floor catch the strong descending rays and flash them along the ceilings of rooms and corridors.

The apparatus has already been installed in the *L'Intransigrant* publishing plant in Paris. The only upkeep is said to be washing the mirrors.

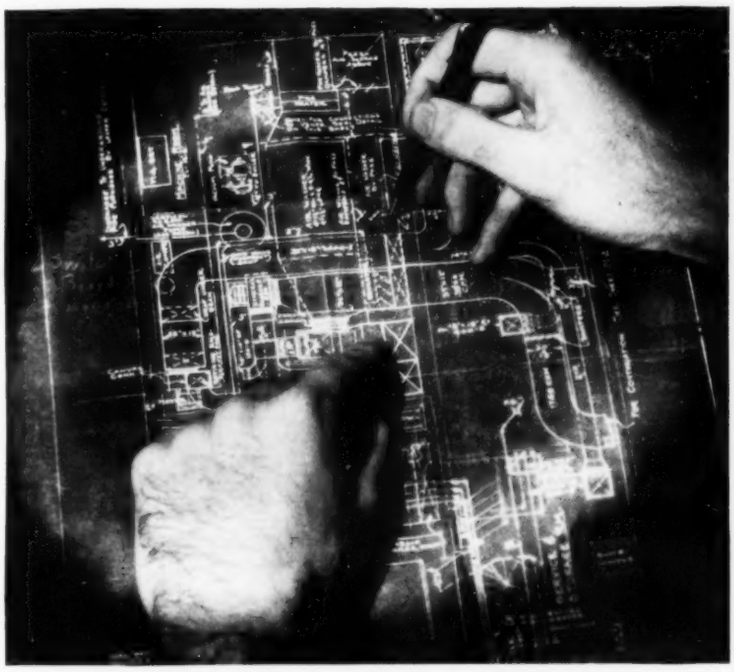
CHART OF EARLY AMERICAN ARCHITECTURE

A chronological chart of examples of early American architecture in and near Boston has been prepared by the Committee on Education of the Boston Society of Architects. The list is limited to buildings at least 100 years old. The present edition is published as "subject to revision" and readers are urged to call attention to errors and omissions so that a more complete and larger republication can be secured, according to an announcement by Robert P. Bellows, architect, 8 Beacon Street, Boston.

COLUMBUS MEMORIAL COMPETITION

The report of the jury in the Columbus Memorial Competition announced Donald Nelson and Edgar Lynch as architects of the second prize design. The announcement should have included Bennett, Parsons and Frost as associated architects, and Oscar J. W. Hansen as associated sculptor.

The Barber-Colman Electric System of Temperature Control



Control of by-pass dampers on a Split System installation. Left hand indicates location of duct thermostat beyond the fan. Right hand points to location of reversing damper controller on by-pass dampers.

THERMOSTATIC CONTROL OF DIRECT-INDIRECT RADIATION

DIRECT-INDIRECT RADIATION, known also as the "Split System," provides a supply of air for ventilation purposes, utilizing direct radiation for the heating. In this type of system Barber-Colman *electric* Room Thermostats and *electric* Motor-Operated Valves furnish effective and economical control of the direct radiation, while the ventilating system will be controlled by Barber-Colman *electric* equipment as follows: Motor-Operated Steam Line Valves on the heating and reheating coils; Motor-Operated Damper Controllers on the intake, exhaust, and by-pass dampers; and *electric* Thermostats of the insertion or "duct" type to control the operation of the valves and the damper controllers. When so equipped this system will deliver accurately tempered air for ventilating purposes, automatically maintained at 70 degrees F. The controls will regulate the admission of steam to the heating coils and will govern the proper mixing of the heated and unheated air. Barber-Colman *electric* controls on the complete system, comprising the direct radiation and the air-conditioning equipment, will function automatically and dependably, and with an appreciable economy over other methods of control.

A 48-page catalog describing the Barber-Colman Electric System of Temperature Control will be mailed upon request. Write for your copy today.

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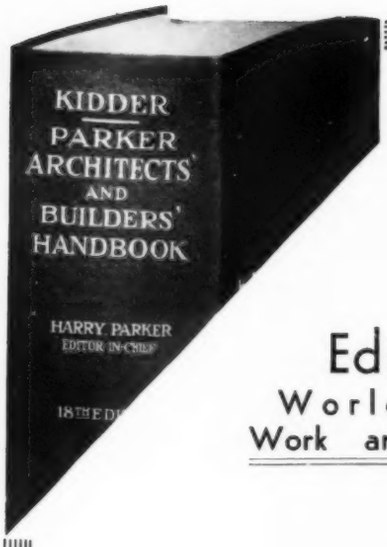
The first successful ELECTRIC SYSTEM of Room Temperature Control



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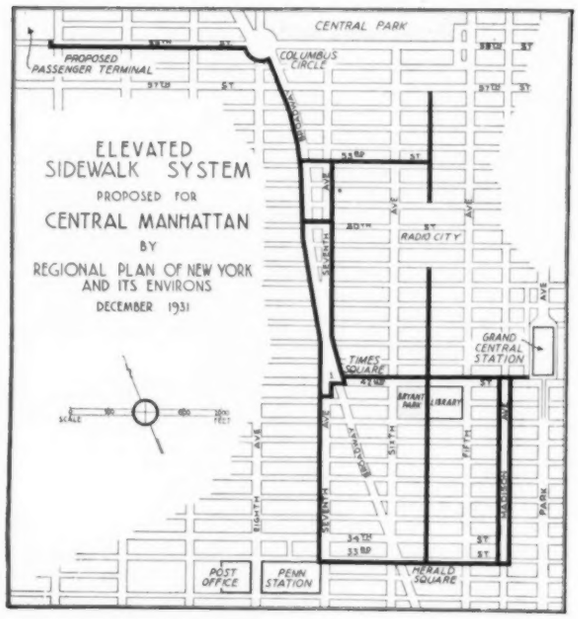


ELEVATED SIDEWALKS FOR NEW YORK

Provision for pedestrians on a separate level in congested areas, with architectural possibilities of second story entrances to buildings, and a limited use of two-level roadways where overcrowded buildings or favorable topography makes them expedient, have been suggested by the Regional Plan of New York and Its Environs. The proposed system of elevated walks is shown in the above plan.

VACANCIES IN RESIDENTIAL BUILDINGS DURING 1931

Less than 5 per cent of single-family houses were vacant in two-thirds of the cities reporting in a recent survey of vacancies in residential buildings made by local organizations and reported to the Department of Commerce.

The survey, conducted in 37 cities, shows that single-family houses are more in demand than flats or apartments. In none of these cities did the vacancies exceed 9.5 per cent of the single-family houses. Vacancies in apartments ranged from 6.8 per cent to 27.2 per cent; in flats from 4.4 per cent to 20.2 per cent, and in two-family houses from 3.4 per cent to 20.1 per cent. In no city were total vacancies in all types of residential property more than 11.2 per cent, the survey shows.

The data were compiled by the Division of Building and Housing of the Department of Commerce from surveys made by local organizations in various cities.

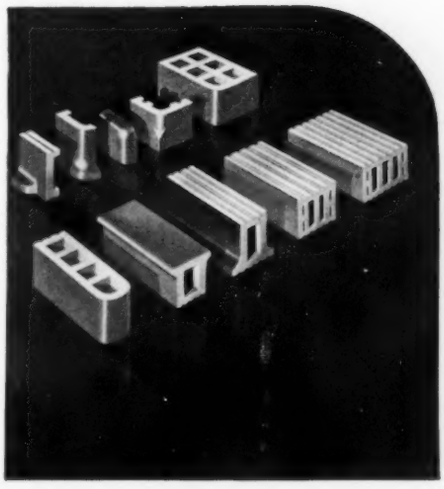
TO BUILD STEEL FRAMES FOR HOMES

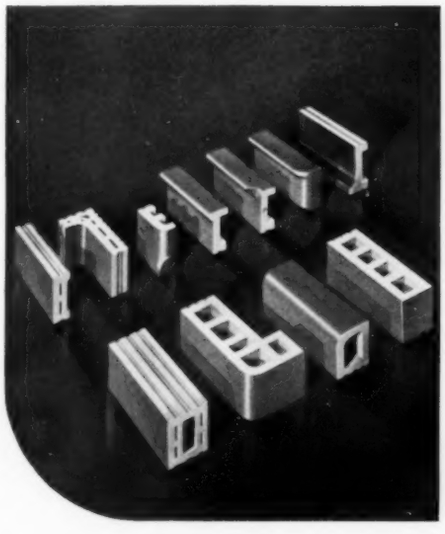
The manufacture of steel frames for steel homes is planned by the A. O. Smith Corporation of Milwaukee, according to press reports, which state that a program for 100,000 homes as the first unit of manufacture is under consideration. The plan, it is understood, is to manufacture all steel frames to be assembled on the building lot.

NATCO VITRITILE— EXPRESSING ARCHITECTURAL IDEALS IN MASONRY

The architect, alone of all workers in artistic fields, must confine himself to giving his artistic creations form; the task of giving them substance must be entrusted to the hands of workmen. Natco Vitritile is designed and manufactured with this unique restriction in mind. Every resource and facility of the great National Fireproofing Corporation—its many years of experience, its 23 plants, its extensive research work, its staff of graduate ceramic engineers—is directed toward making Natco Vitritile a true medium for the expression of architectural ideals in masonry.

Both artistic and structural needs have been intelligently anticipated, competently met. Glaze materials gathered from the four corners of the earth are expertly combined, and applied to the raw tile by costly, specially designed machines. In the most advanced types of kiln the glazes are subjected to the intense controlled heat that gives them immortality, makes them immune to time, dirt, grease, chemicals, and temperature. A rich range of shades and tones, plain and mottled, gives ample latitude in color design.





The comprehensive line of Natco Vitritile units (the illustrations show only a few) comprise units that meet all normal structural needs. Interioror or exterior load bearing walls, dwarf walls, wainscoting and partitions may all be erected quickly, easily, economically.

Plates, showing the shade ranges available; dimension drawings showing the units; and detail drawings showing construction methods, are contained in the Natco Catalog in Sweet's Architectural Catalogues, A-549-603. If you do not have access to Sweet's, send for a Vitritile Catalog and Shape Bulletin.

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USE OF NEW MATERIALS RECOMMENDED IN PRESERVING ANCIENT MONUMENTS

An international conference of experts on the protection and preservation of artistic and historic monuments was held in October in Athens, Greece, under the auspices of the International Museums Office, an activity of the League of Nations.

Suggestions for the use of modern materials, particularly reinforced concrete, for the maintenance of ancient monuments were recommended. The conference specified that wherever possible such work should be concealed in order to preserve the aspect and character of the restored monuments.

The conference also recommended that the surroundings should be given special consideration. The suppression of all forms of publicity, of the erection of unsightly telegraph poles and the exclusion of all noisy factories and even of tall shafts in the neighborhood of artistic and historic monuments was urged.

BUILDING TRADES TRAINING CENTER ADVOCATED

The need for a building trades training center was discussed at the last monthly meeting of the New York Building Congress. William E. Grady, Associate Superintendent of the Board of Education, and Franklin J. Keller, Director of the Vocational Survey Commission, were the principal speakers. Joseph M. Sheehan, Associate Superintendent of the Board of Education, also took part in the discussion.

STANDARD SPECIFICATIONS FOR ELEVATORS

The first edition of the American Standard Safety Code for Elevators was published in 1925. The preparation of this edition disclosed a lack of knowledge in regard to the design, construction and functioning of auxiliary devices. Consequently, in 1926 the Committee established a research fellowship at the Bureau of Standards and initiated a research program.

The revised Code was published last summer and is now available. It should be made the basis of the specification for every elevator installation. The expectation back of its preparation is that it will be adopted by States and municipalities, and that safety requirements for elevator installations will thus be uniform. This accomplishment will be greatly expedited by the use of the Code as the basis of architects' specifications. To facilitate such use the Committee has undertaken the preparation of a standard specification for elevators.

The Committee wishes to caution the architectural profession against the use of any alleged standard specifications for elevators not approved by the American Standards Association. This word of caution is spoken because of the character of specimens of such specifications that have come before the Committee.

Sullivan W. Jones, A. I. A., Chairman,
Committee on Safety Code for Elevators

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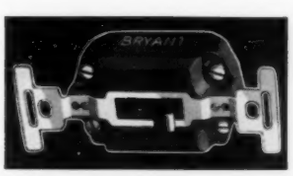

A.R.132

Bard Hall, Columbia-Presbyterian Hospital Medical Center, New York City
James Gamble Rogers, Architect; Marc Eidlitz & Son, Builders

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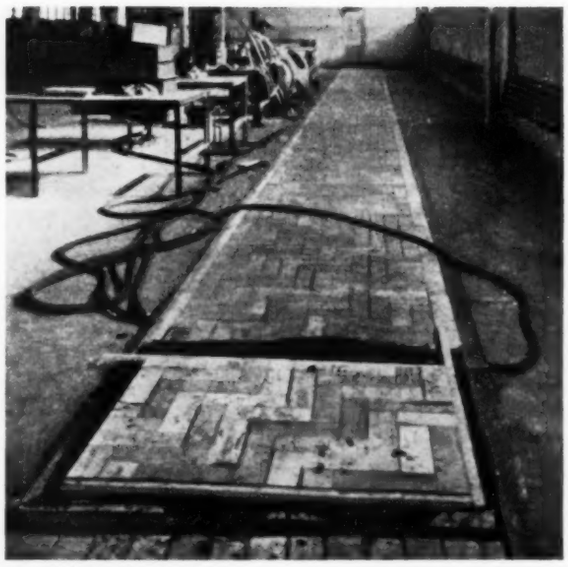


General Electric Review

ELECTRIC HEATING IN WOOD BLOCK CONSTRUCTION

A thin layer of pitch is first spread on the concrete underflooring. Plain non-galvanized wire netting is then placed on the pitch and rolled flat, after which the wood blocks are laid. By passing an electric current through the wire netting, the pitch is melted to such a consistency that it adheres to the wood blocks. The blocks are then rolled and the pitch allowed to harden. A clean surface is thus obtained.

SHUTTLES FOR RADIO CITY

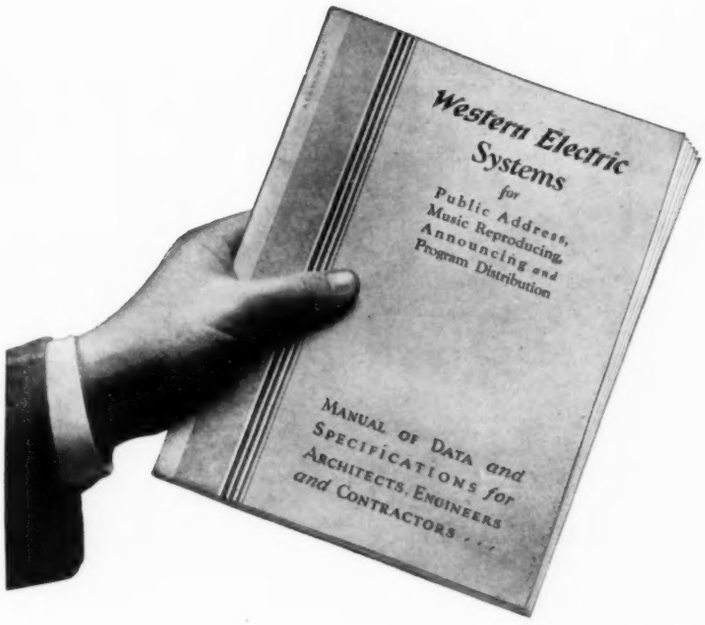
An endless chain system of electric cars running in miniature subways is reported to be one of the features in the Rockefeller Radio City development, now under construction in New York City (described in the April, 1931 issue of THE ARCHITECTURAL RECORD). This shuttle system will link the building center with the principal uptown transportation centers.

ADDITION TO AMERICAN WING AT THE METROPOLITAN MUSEUM

The Metropolitan Museum of Art, New York City, announces an addition to the American Wing, consisting of a room from Providence, R. I., and the Great Hall from the Van Rensselaer Manor House, at Albany, N. Y., dating from 1765. Both rooms are housed in a special one-story building, which also permits the installation of several Early American doorways not hitherto shown.

ARCHITECTURAL EXHIBITION IN TEXAS

The Museum of Fine Arts of Houston has just closed an exhibition of work by members of the South Texas Chapter of the American Institute of Architects. Homes in Alabama, Tennessee, and Fisher's Island, New York; a mausoleum in Kansas City; and office buildings, hotels, schools, and homes throughout Texas were part of the 200 drawings and photographs exhibited.



It tells how to specify . .

Amplified Sound

Here is a book that belongs in your files. It is a manual of data and specifications (A. I. A. File No. 31-i-7) covering Western Electric Systems for Public Address, Music Reproducing, Announcing and Program Distribution. It tells you how sound can be scientifically reenforced, how programs can be picked up, amplified and distributed in a structure of any size and in as many separate rooms as desired. It shows illustrations and schematic diagrams of installations for auditoriums, convention halls, churches, hotels, apartment houses, hospitals, schools. It describes other uses, too. If a copy is desired let the coupon bring you one promptly.

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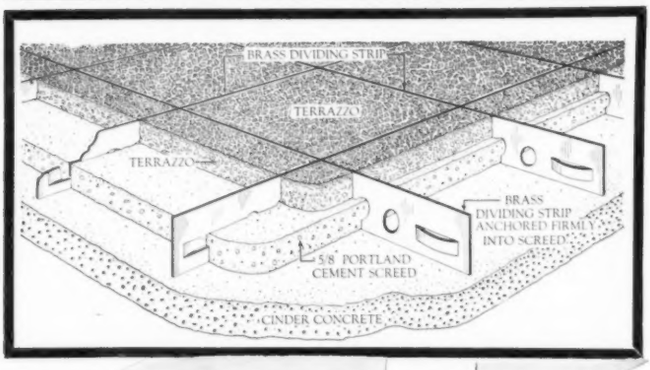

A Convenient Sample Tray

We have prepared an attractive leatherette desk tray containing nineteen 8-in. samples of MANHATTAN METAL FLOOR STRIPS in various gauges and metals. These samples will be very helpful to anyone planning a floor involving the use of metal strips. A request to Dept. "J" on your business stationery will bring it to you promptly.

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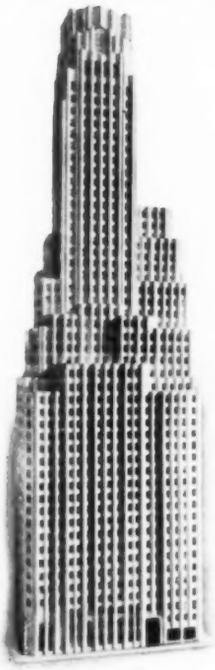


Metal Floor Strips in One Wall Street were supplied by Manhattan.

CASTLE HARBOUR HOTEL, TUCKER'S TOWN, BERMUDA
MAYERS, MURRAY AND PHILLIPS, ARCHITECTS

ARCHITECTURAL SERVICE ADVOCATED

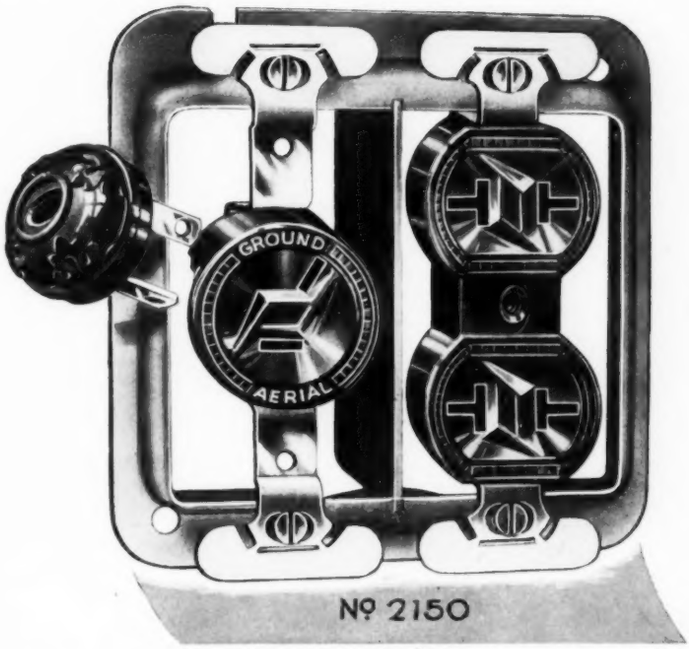
The need for proper architectural service is urged by the Morgan Woodwork Organization of Chicago in its better homes design campaign: "A good building is the product of a good architect, a good contractor, and good craftsmen using good materials."

BUSINESS SIDE OF ARCHITECTURE TO BE TAUGHT AT HARVARD

An "architectural clinic" will be held as a course at the Harvard School of Architecture during the second half of this year to acquaint the student with practical professional problems. The statement of Dean Harold G. Edgell in announcing the new course was, "The object of a school should be to turn out not draftsmen but architects, and architects who will practise on their own responsibility. To do this they must have some familiarity with the business side of architecture. They must know something of the point of view of the promoter, the real estate agent, the real estate attorney, the engineer, and a multitude of other individuals with whom the architect has to work before a building can be a practical success. The Harvard School of Architecture has succeeded in engaging the services of Mr. Charles H. Lench, of New York, to give such a course on the business side of architecture."

Mr. Lench is the architect of a large number of commercial buildings in New York. He is the author of a volume, just issuing from the press, on the promotion of commercial buildings. He has also lectured at Columbia University on "The Architect's Relation to the Promotion and Financing of Income-Producing Buildings."

H & H Complete Line of New RADIO OUTLETS



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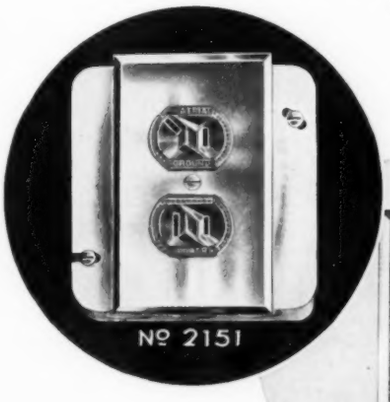
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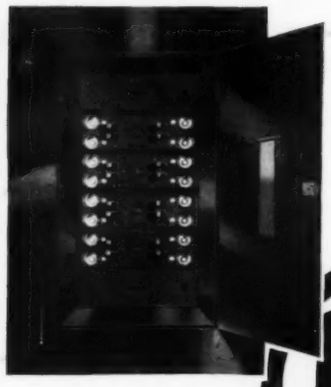

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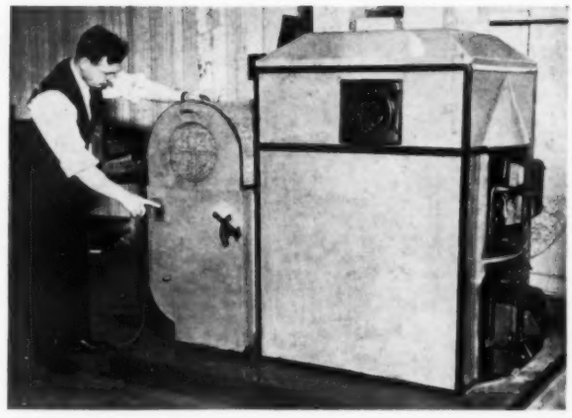

Holland Furnace Co.

AIR CONDITIONING FOR HOMES

This new unit, in combination with a warm air heater, constitutes a complete air-conditioning system that gives controlled heating and humidification during winter, controlled air circulation and air-washing the year round, and air-cooling during summer. The unit is about 40 inches high, occupies less than 10 square feet of space, and is designed primarily for attachment to warm-air heaters. It may also be installed as an independent auxiliary with other type systems.

In addition to its cabinet, the conditioner consists of a semi-cylindrical copper mesh filter; a high-speed, twin-fan air circulator; a series of water-spray nozzles, and an eliminator.

OHIO STATE REGISTRATION BOARD

At the October 27 meeting of the Cleveland Chapter of the American Institute of Architects, the following appointments by Governor George White of Ohio as members of the architectural registration board were announced: Gilbert Miller, Girard, Ohio; George McDonald, Cincinnati; Lester Redding, Mansfield; Ralph Kempton, Columbus; and David Owsley, Youngstown.

HARDWARE FOR HOMES

To overcome the lack of interest manifested by the general public in the selection of good hardware for homes, dealers and builders' hardware men have initiated a campaign to emphasize the value of their products. "Your House is as Good as its Hardware" has been selected as a slogan.

SHOCK-ABSORBING FLOORS

Wood floors with a built-in shock absorber that takes the jolts out of walking are a development announced by the Masonite Corporation, Chicago. The cushioned flooring, which is tongue-and-groove construction, consists of outer layers of tempered *Presdwood* and an inner layer of *Quartrboard*, the latter being a shock absorber and sound deadener between floors. The new flooring comes in three sizes, 6", 9" and 12" square, and is reversible, light on one side and dark on the other.